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Stop the Pendulum!

In the Management section: While companies swing between the centralized and decentralized IT models, veteran CIO and consultant Doug Lewis favors a hybrid governance scheme that combines a central shared-services group and business-unit CIOs. **Page 37**

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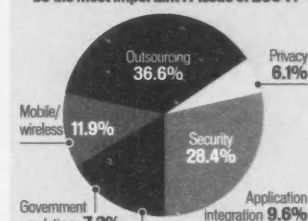
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ONLINE

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QuickPoll Results

Of the following, which do you think will be the most important IT issue of 2004?



Note: Percentages don't add up to 100 due to rounding.
Take this week's QuickPoll at www.computerworld.com.
SOURCE: COMPUTERWORLD.COM NONSCIENTIFIC SURVEY. 105 VOICES

The Building Blocks of ILM

STORAGE: By treating information life-cycle management as a series of building blocks, companies can improve operations right away, advises Jehoshua Bruck, co-founder of Rainfinity and a computer scientist at CalTech. **QuickLink 43467**

The Root of Project Management Failure

DEVELOPMENT: Until we settle on the core nature of software development, we can't expect to manage it successfully, says columnist Bill Walton. **QuickLink 43473**

What's a QuickLink?

Throughout each issue of *Computerworld*, you'll see five-digit QuickLink codes pointing to related content on our Web site. Also, at the end of each story, a QuickLink to that story online facilitates sharing it with colleagues. Just enter any of those codes into the QuickLink box, which is at the top of every page on our site.

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AT DEADLINE

SEC May Charge IBM Over IT Sale

IBM said the U.S. Securities and Exchange Commission's staff may recommend that civil charges be filed against it in connection with an \$11 million sale of used IT equipment to Dollar General Corp. in 2000. The SEC also sent a so-called Wells Notice about possible charges to an IBM employee. The probe of the IBM sale is part of a wider investigation of accounting practices at Goodlettsville, Tenn.-based Dollar General.

SAP Studies Apps, Mulls Code Changes

SAP AG said it has assigned a team of developers to analyze its key business applications in search of potential modifications that could lower the company's engineering costs and software integration expenses for corporate users. The project, called Vienna, began more than a year ago. But an SAP spokeswoman declined to say when the company expects to see any results.

Hacker Cops Plea in NY Times Break-in

Hacker Adrian Lamo pleaded guilty to charges that he broke into the computer network of The New York Times Co. in February 2002. Lamo, 22, will be sentenced in April and faces up to five years in prison and a \$250,000 fine, according to the U.S. attorney's office for the Southern District of New York. But he is likely to be sentenced to less time, said a spokesman for the attorney's office.

Dell Signs Deals to Expand Printer Line

Dell Inc. said it will "significantly" expand its line of printers and imaging products through sourcing deals with Fuji Xerox Co., Eastman Kodak Co. and Samsung Electronics Co. New products are due this year, said Dell.

Verizon Plans Faster Wireless Data Network

Users say improved throughput could speed synchronization, support e-mail

BY BOB BREWIN

PLANS by Verizon Wireless to install a beefed-up cellular data network throughout the U.S. captured the attention of several corporate IT managers, who said the promised throughput levels could support applications such as sales force automation and streaming video.

Verizon Wireless last week said it will begin a phased rollout of its BroadbandAccess third-generation wireless network this year and start offering services nationwide next year. The Bedminster, N.J.-based company added that the network will cost about \$1 billion and support data rates of 300K to 500Kbit/sec., three to four times faster than the rival technologies that are available now.

Some users in San Diego and Washington have been testing BroadbandAccess since October. Scott Cranford, a vice president at San Diego-based Continental Lab Products Inc., said the nationwide rollout will let sales workers at the laboratory equipment distributor quickly synchronize their laptop PCs with corporate databases from anywhere in the U.S.

Service Boost

Sales reps in San Diego and Washington can synchronize data with Continental's back-end systems in "about a minute," Cranford said. Workers in other parts of the country have to use Verizon Wireless' older data network, which provides data rates of up to 70Kbit/sec. Data synchronization over that network can take 20 minutes, Cranford said. Charlie Orndorff, vice presi-

dent of infrastructure services at Crossmark, a Plano, Texas-based company that offers sales and marketing services to makers of consumer packaged goods, said he plans to evaluate BroadbandAccess as a means of providing remote e-mail access to 2,000 end users equipped with Hewlett-Packard Co.'s iPaq handheld computers.

Orndorff said Crossmark uses the existing Verizon Wireless network to support access to back-end sales force automation applications. But the network doesn't have enough bandwidth for e-mail, he noted.

Verizon Wireless plans to charge a monthly fee of \$79.99 per user for unlimited data services on the BroadbandAccess network. Orndorff said he views the price as reason-

able, considering that Crossmark previously was spending about \$50 per month for each sales worker so they can do dial-up synchronization.

BroadbandAccess is based on the Code Division Multiple Access Evolution-Data Only (EV-DO) standard. In November, AT&T Wireless Services Inc. launched an upgrade of its GSM/GPRS network that supports data rates of up to 130Kbit/sec. [QuickLink 43036]. AT&T Wireless spokesman Ritch Blasi said the Redmond, Wash.-based company will offer faster rates when it starts deploying services based on the Universal Mobile Telecommunications System standard later this year.

Sprint Corp. said it views EV-DO as inefficient because the technology requires dedicated spectrum. Instead of upgrading its network now, Sprint plans to wait until 2006 and offer high-speed services based on the CDMA Evolution-Data Voice standard,

CELLULAR SERVICES

AT&T Wireless

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AVERAGE SPEED: 100K-130Kbit/sec.
AVAILABLE: Nationwide
PRICE: \$79.99 per month for unlimited use

Sprint PCS

TECHNOLOGY: CDMA 1xEV-DO
AVERAGE SPEED: 50K-70Kbit/sec.
AVAILABLE: Nationwide
PRICE: \$100 for transmitting 300MB of data per month

Verizon Wireless

TECHNOLOGY: CDMA EV-DO
AVERAGE SPEED: 300K-500Kbit/sec.
AVAILABLE: In a "significant portion" of the U.S. by summer
PRICE: \$79.99 per month for unlimited use

which is due to support data rates of 400Kbit/sec. as well as voice calls.

But Hank Mounkhal, a manager in the global network systems group at United Parcel Service Inc. in Atlanta, said he thinks Verizon Wireless' new network will put "competitive pressure" on rival carriers like Sprint and AT&T Wireless. **43952**

Telecom Parent Embraces Packet Switching

Verizon Communications last week announced plans to shift its nationwide telecommunications network to packet-switched technology as part of a plan to offer new voice-over-IP and multimedia services.

The network upgrade, which will include the installation of VoIP equipment made by Nortel Networks Ltd., is the first major packet-switching conversion by one of the regional Bell operating companies. But it follows similar VoIP plans announced last year by AT&T, Sprint and MCI, analysts said.

The VoIP deployment will begin by midyear as part of a deal that's initially valued at "hundreds of millions of dollars" over the next five years, said Paul

Lacouture, president of the network services group at New York-based Verizon.

Savings Expected

The addition of the VoIP capabilities "could save us hundreds of thousands of dollars annually," said Jack Wolf, CIO at Montefiore Medical Center in New York. The health care provider has more than 17,000 phone lines running on 30 private branch exchange switches.

The cost savings would come from the elimination of numerous T1 lines that are used solely to support voice services at two hospitals and 37 remote sites, Wolf said. In addition, the wireless handheld devices and laptop PCs used by doctors could

become VoIP voice portals.

Montefiore is already a customer of both Nortel and Verizon, and Wolf said he encouraged the two vendors to provide VoIP services. But he added that it could be another two years before the medical center is ready to run voice traffic over its data networks. "We will be very careful as this rolls out, because anything affecting direct patient care has to be 100% industrial-strength."

Verizon may not offer any unique VoIP applications, said Joe McGarvey, an analyst at Current Analysis Inc. in Sterling, Va. But it seems to be developing a more comprehensive packet-switched network than rival carriers, he added.

- Matt Hamblen

IT Workers Scoff at Vendor CEOs' Lobbying Efforts

Calls to help stem U.S. job losses seen as insincere

BY DAN VERTON
WASHINGTON

A group of influential high-tech CEOs last week released a report that calls on Congress and the Bush administration to avoid protectionist trade measures that could hurt the industry's global competitiveness and lead to a further loss of U.S. jobs.

But IT professionals in the U.S. have a different message for Congress and the industry's leading CEOs: Stop sending our jobs overseas.

"What goes around comes around," said Richard Gump, an independent programmer who works on a contract basis in the insurance and health care industries. "Now that they feel the pain, they want the government to help them. Where were they when they were laying employees off and sending their jobs overseas?"

The executives from the Computer Systems Policy Project (CSPP), which includes Dell Inc. CEO Michael Dell and Hewlett-Packard Co. CEO and Chairman Carly Fiorina, are urging the government to support three major policy recommendations that they say are critical to bolstering the U.S. IT industry's global competitiveness [QuickLink a3940].

Offshoring Essential

The CEOs want the government to expand support for research and development, maintain a business climate that rewards risk and entrepreneurship, and improve education and training for students and displaced IT workers. But the report's implicit defense of offshore outsourcing, which it characterizes as essential to doing business globally, is being interpreted by some as a slap in the face to a devalued U.S. IT workforce.

Corey Goode lost his job as

a network administrator at Dallas-based hotel and resort operator Wyndham International Inc. shortly after the Sept. 11, 2001, terrorist attacks. After a year of unemployment, he landed a job at Microsoft Corp., only to lose it when his work was outsourced to India.

"We [displaced workers] are not a xenophobic group of people. We have no problem with other countries trying to take advantage of a situation that will raise their standard of living," said Goode. But "we are now training our foreign replacements as well as watching hundreds of thou-

Where were they when they were laying employees off and sending their jobs overseas?

RICHARD GUMP
CONTRACT PROGRAMMER

sands of jobs leave the country. The jobs are leaving not because of the local skill level but because of the wages [companies] have to pay and the taxes they can avoid paying by using foreign workers."

"The IT industry is not asking for a handout," said Jennifer Greeson, a spokeswoman for Intel Corp., whose CEO, Craig Barrett, chairs the CSPP. "We are calling for a long-term, strategic plan that invests in the future of the nation and its workforce."

Greg Eden, a spokesman for CSPP member EMC Corp., defended his company's outsourcing policies, saying that 65% of EMC's employees are based in the U.S. and that recent layoffs affected U.S. and foreign operations equally.

CSPP Executive Director Bruce Mehlman said the

report and policy recommendations aren't symptoms of IT companies struggling to make ends meet. "These companies are not feeling the pain. They are doing very well despite the highly competitive global environment," said Mehlman.

"The tech industry has grown jobs and will continue growing jobs here at home," he said. But "we must never compete in the battle to see who can pay their workers the least." And that will require "enlightened policies" that support innovation, entrepreneurship and education, he said. **Q 43945**

Grids May Ease Burden on Mainframes

BY PATRICK THIBODEAU

Hewitt Associates LLC used IBM mainframe resources for compute-intensive pension calculations that customers entered in through a Web portal. It was a waste of money, and Dan Kaberon knew it.

Kaberon, director of computer resource management at the global human resources services firm, faced millions of dollars in added mainframe CPU costs and larger bills from his software vendors, whose license fees are based on MIPS usage. But the number crunching didn't require mainframe quality of service.

"Could you run a word processor on a mainframe?" said Kaberon. "You could do it. It's just a bad idea."

So with a bit of skepticism, he turned to grid technology.

In October, Lincolnshire, Ill.-based Hewitt began working with IBM to distribute the pension computation to a grid of Intel-based blade servers running Linux. And by the end of last month, Kaberon was convinced that his company would avoid millions of dollars in mainframe upgrade costs. The firm isn't planning a wholesale plunge into grid technology, and neither are most users, according to recent survey data. But interest is clearly growing.

Gaining Popularity

One in five companies may deploy grid technology during the next two years, according to a survey of approximately 550 database administrators and developers released last week by Evans Data Corp.

Santa Cruz, Calif.-based Evans Data found that 12% of the respondents have deployed grid technology or plan to do so in the next year. Another 9% said they expect to adopt a grid computing strategy in the next two years. Joe McKendrick, a researcher at Evans Data, said he believes Oracle Corp.'s decision to incorporate grid features in its flagship Oracle 10g database is spurring interest.

Another indicator of growing grid adoption is a utility computing survey recently conducted by IDC in Framingham, Mass. IDC analyst Dan Kusnetzky noted that grid technology is "the hardware architecture underneath utility computing." In its survey of 1,071 IT decision-makers, which hasn't yet been published, IDC found that roughly one in five companies plans to move to utility computing in the next two years.



KABERON: Hewitt's grid could help the firm avoid millions in mainframe costs.

Grid computing is seen by some analysts as an evolutionary step in distributed computing, potentially allowing a company to manage resources as a single virtual computer. Cost savings can be achieved, in part, by moving resources off specialized systems to commodity hardware, said Ah-

mar Abbas, an analyst at Grid Technology Partners in South Hadley, Mass. But widespread grid adoption is still years away because of technical challenges. Kaberon, for instance, said he believes that Hewitt may have been the first company to

move a transaction-based process to a grid. But the company is otherwise taking an "extremely evolutionary" approach because of integration issues, he said.

The strength of a mainframe environment is the degree of integration, where "everything talks to everything else," said Kaberon. But moving one part of that environment to a grid can involve moving many parts. He compared it to pulling on a loose thread. "It's very difficult to pull out a piece successfully without having to re-engineer the whole [thing]," he said.

Q 43948

Corrections

The Dec. 15 story "CRM to Go" indicated that DecisionOne Corp. had ended its entire outsourcing relationship with Electronic Data Systems Corp. In fact, DecisionOne had brought back in-house some IT duties and changed its CRM outsourcing, but it maintained EDS as a key outsourcing provider.

A story in last week's Premier 100 IT Leaders special report ("IT Agenda 2004") incorrectly identified the software that the Florida Department of Children & Families is using to integrate data from different mainframe systems. The agency is an early adopter of InterSystems Corp.'s Ensemble technology, which supports application and data integration and development of composite applications.

MORE ONLINE

Q&A: IBM software executive talks about the future of grid computing.

QuickLink 43890
www.computerworld.com

BRIEFS

Auto Parts Maker Outsources IT

Key Safety Systems Inc., a Sterling Heights, Mich.-based maker of automotive safety equipment, has signed a 10-year IT outsourcing deal with Perot Systems Corp. Financial details weren't disclosed. The companies said Perot will relocate Key's data center to its headquarters in Plano, Texas, and manage the company's IT operations in North America and parts of Europe.

IBM Trims More Software Jobs

IBM said it has cut about 300 jobs in its software group and another 100 in its IT services unit, continuing a series of small workforce reductions that began last September and have primarily affected software developers. The latest cutbacks are part of an effort to reduce costs and shift workers to areas such as software telesales and technical sales support, IBM said.

Dell Adds Low-end Gigabit Switches

Dell Inc. announced a line of three unmanaged Gigabit Ethernet switches designed for file sharing and multimedia uses at remote offices, academic institutions and small or midsize companies. Pricing for the PowerConnect 2600 devices starts at \$179. Dell also cut the price of its PowerConnect 5224 Layer 2 switch to about \$79 per port.

Short Takes

3M CO. in St. Paul, Minn., said it plans to buy HighJump Software Inc., an Eden Prairie, Minn.-based developer of supply chain execution software. The purchase price wasn't disclosed. . . . Menlo Park, Calif.-based CRM vendor KANA SOFTWARE INC. agreed to acquire Hipbone Inc., a maker of online collaboration tools in San Carlos, Calif.

MARK HALL ■ ON THE MARK

Apple Nibbles at New Markets ...

... with its upgraded server and RAID systems as well as new clustering and grid technologies. What's stunning isn't that Apple Computer Inc.'s engineers can, say, design a server with two 2-GHz G5 processors, 1GB of memory, storage capacity of 80 to 750GB and loads of other goodies all in a slim 1U package (a mere 1.75-in. thick). No, what's stunning is that Apple's marketers will price the Xserve system at \$3,999. That makes the long-reputed price-gouging Macintosh maker the price leader for dual-CPU servers by a couple of bucks. But when you

add in Windows per-client pricing, the savings become huge. Apple sells its systems with no per-client fees for Mac OS X. In contrast, a 25-user enterprise license for Windows adds \$2,495 to the price of a dual-processor PowerEdge 1750 server from Dell Inc. Apple's approach has won it a few small bites of business among penny-pinching Internet service providers, cheapskates in the scientific and technology communities, and even the money-grubbers on Wall Street. Well, maybe not exactly Wall Street. But one CIO in the financial industry, Jon Moog at St. Cloud, Minn.-based RiskWise LLC, which runs credit checks for large financial institutions, uses more than 250 Xserve systems in his data center and is more than pleased. "We get tremendous performance from them," he says. Tom Goguen, Apple's director of product management for

server software, claims that Moog and others in markets outside his company's bailiwicks of publishing and education buy the Xserve systems because of Apple's slavish support of industry standards. Moog agrees. But he's also enamored with the Xserve's pricing. "Dollar for dollar, the systems are cheaper than Windows machines," Moog points out. Will he upgrade to the new G5 Xserve? "Without a doubt." Savings begin next month, when shipments start. ■ One small part

Free Certification

Linux Professional Institute Inc. in Brampton, Ontario, will be offering free Linux certification testing for attendees at next week's LinuxWorld Conference at the Javits Convention Center in New York. You must preregister at www.lpi.org/en/register.html. Study hard.

of the aggressive cost containment in Apple's servers is its use of low-cost Advanced Technology Attachment drives. One ATA drive maker, Nexsan Technologies Inc. in Woodland Hills, Calif., will be improving ATA drive performance and capacity later this quarter when it ships the first serial-interface ATA blade on the market, claims Senior Executive Vice President Diamond

Lofton. The SATAblade will pack up to eight 250GB drives into a single 1U RAID appliance. And you can tie three of the devices together, packing 6TB into a unit that's less than 6 inches wide. Lofton says that reading and writing data to and from the drives will be boosted to 220Mbit/sec. per port, up from 75Mbit/sec. today. And, he adds, "there will be no price increase, possibly even a price decrease." ■ The major database vendors have long chided MySQL as not being an enterprise-class database because it lacks stored procedures, which let developers write an application so that part of the application logic can be stored on the server and part on the client. This week, MySQL AB in Uppsala, Sweden, will release MySQL alpha Version 5 to open-source developers, who will test it for bugs and reliability. It will use industry-standard SQL, as opposed to the various SQL dialects adopted by other database suppliers, claims Marten Mickos, MySQL's CEO. He expects the final version to be ready in about six months. "But we won't rush things," he says. "It's like a cake. It's done when it's brown, not when the timer goes off." ■ Used to be that a television was a TV and computer display a mere monitor. But it'll be harder to tell the difference beginning in April, when Sharp Electronics Corp. in Mahwah, N.J., releases Open Aquos, a line of 15- or 20-in. TVs equipped with a PC Card slot, a Java virtual machine and 802.11 wireless capability. Gary Feathers, director of digital audiovisual systems for Sharp Labs in Camus, Wash., expects third-party developers to exploit the JVM for both consumers and business. But if you just want to watch TV wirelessly, be one of the first next month to get Mobile Aquos, a 15-in. LCD TV that uses 802.11 and three hours of battery life to let you roam at will and not miss a moment of Oprah. ☎ 43924

3Com to Roll Out High-Speed LAN Switch

BY MATT HAMBLÉN

3Com Corp. today will announce its highest-performance LAN switch to date, as it continues to woo large corporate users through a joint venture with Chinese vendor Huawei Technologies Co.

The 3Com Switch 7700R, made by Huawei, supports throughput of up to 96Gbit/sec. and can provide 1-second fail-over capability, said Charles Gallagher, director of product management at Marlboro, Mass.-based 3Com. He

added that the 7700R is priced as much as 25% less than similar switches from Cisco Systems Inc.

Although users could get similar fail-over capability by buying a pair of 3Com's existing 7700 switches, they would have to pay \$44,000 for the two devices, Gallagher said, compared with a starting price of \$25,995 for the 7700R.

Prudential Northwest Properties, a real estate brokerage in Portland, Ore., this week plans to start installing a 7700R

device that will be used to consolidate 120 ports now located on four separate switches, said CIO Sean McRae.

McRae said Prudential Northwest needs a backbone switch with the kind of performance and reliability offered by the 7700R to run its core network. Cost issues and ease of management were also factors in the company's decision to use 3Com's switch, he said.

3Com needed such a switch to compete with Cisco and other rivals for business from

bigger companies, said Zeus Kerravala, an analyst at The Yankee Group in Boston. "3Com is doing OK — not great, but not poor — as they go through a serious company transformation," Kerravala said. "They're not going to be a serious enterprise player overnight."

The 7700R can handle Gigabit Ethernet transmissions now and includes future support for 10 Gigabit Ethernet cards, which should appear by midyear, according to Kerravala. "That's a little behind the competition," he noted.

☎ 43934



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- IBM Embedded Security Subsystem 2.0 – Strongest security as a standard feature

System Features:

- Intel® Centrino™ mobile technology
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Distinctive IBM Innovations:

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System Features:

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BRIEFS

Siebel Results for Q4 Top Projections

Siebel Systems Inc. said its financial results for last year's fourth quarter will top its projected figures. The company now expects fourth-quarter revenue to total \$365 million, with new sales of its CRM software amounting to about \$150 million. Siebel also said it has completed a realignment of its worldwide sales force into three geographic units.

Novell Adds SUSE Support to Ximian

Novell Inc., which is buying SUSE Linux AG [QuickLink 42677], said its Ximian applications for Linux-based PCs now work with SUSE's latest client-level operating system releases. Novell added support for SUSE Linux Desktop and SUSE Linux 9.0 as part of a Ximian Desktop 2 upgrade. The software also includes an update of the Ximian Red Carpet configuration management tool.

IBM Teams Up With SUSE on Retail IT

IBM said it plans by midyear to ship a Linux-based point-of-sale system that uses a version of SUSE Linux's server software customized for retail uses. The new technology is being designed to work with IBM's servers, middleware and SurePOS cash register systems. It will include four Linux images optimized for use with point-of-sale terminals, plus centralized management and distribution tools, IBM said.

Short Takes

SBC COMMUNICATIONS INC. said it has acquired Callisma Inc., a Palo Alto, Calif.-based consulting firm that plans, designs and installs corporate networks. Financial terms weren't disclosed. . . . Bedford, Mass.-based RSA SECURITY INC. said it expects to report fourth-quarter revenue of about \$70 million, beating a prediction of up to \$67 million.

Business Objects Sets Sights On Integrating Analysis Tools

Plans to blend Crystal products with its business intelligence apps by next year

BY MARC L. SONGINI

BUSINESS OBJECTS SA last week said it plans to release a unified set of data analysis and reporting tools next year, combining its business intelligence software with the products developed by Crystal Decisions Inc.

San Jose-based Business Objects, which completed its acquisition of Crystal Decisions last month after announcing the deal in July, unveiled its road map for integrating the two product lines. It plans a three-step approach, beginning with the rollout of capabilities such as a joint software portal and common application programming interfaces for Web services.

Those features are due by midyear and will be followed later in 2004 by platform-level integration support, Business Objects said (see box). Eventually, users will get a single

offering that has the dashboard, score-carding, and query, analysis and reporting tools that are embedded in Business Objects' software plus the scalability and data delivery mechanisms that are part of Crystal Decisions' reporting suite.

The deal between Business Objects and Palo Alto, Calif.-based Crystal Decisions was one of two big merger agreements signed by data analysis vendors last summer [QuickLink 40138]. Business Objects and Hyperion Solutions Corp.,

which bought Brio Software Inc., are both looking to piece together more complete sets of analysis tools for corporate users.

Overall, the product direction laid out by Business Objects sounds appealing, said Joe Gottron, CIO at Huntington Bancshares Inc. in Columbus, Ohio. Gottron decided to standardize on Crystal Decisions' software for re-

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QuickLink 41800
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Development Schedule

Q2: A product integration pack with a portal-style interface, common Web services APIs and support for using Business Objects metadata in Crystal Reports.

Q4: Platform-level integration capabilities, giving key products a common infrastructure and administration tools.

2005: A superset of all current product functionality in a fully integrated release, to be called Business Objects 12.

porting purposes in 2002, and the bank now runs Crystal Enterprise across the company, in operations such as its internal audit and mortgage departments.

But the combined capabilities that Business Objects is promising "add fuel to the fire of what opportunities there are," Gottron said. In particular, he said he would like to exploit the ad hoc querying and end-user dashboard capabilities in Business Objects

once they're integrated with Crystal Enterprise.

The overlaps between the two suites will be eliminated as part of the integration plan, Business Objects said. For instance, the company will keep its own portal but swap in e-mail broadcasting capabilities developed by Crystal Decisions. It will also use Crystal's back-end administration, security and metadata rules management tools, said Chris Caren, vice president of corporate product marketing at Business Objects.

Caren said the company will offer tools to seamlessly migrate installations of both product lines to the combined suite. He added that the new releases will be backward-compatible with existing ones.

In addition to the integration plans, Business Objects announced the release of Version 10 of the Crystal Decisions product line. The upgrade includes tighter integration with Microsoft Office, and it will let Java developers more easily embed reporting capabilities into third-party or homegrown applications, the company said. **43946**

Netegrity to Give Users Provisioning Capabilities

Acquisition of Business Layers bolsters offerings

BY JAIKUMAR VIJAYAN

Users implementing identity management projects traditionally have been forced to deal with multiple vendors and products with overlapping functionality to meet their security requirements.

But some security technology vendors have begun to make strategic moves aimed at positioning themselves as single-source suppliers of identity management products.

Netegrity Inc.'s recent purchase of Business Layers Inc. is the latest example. Under the Dec. 31 deal between the two companies, Waltham, Mass.-based Netegrity will pay approximately \$42.5 million to purchase Rochelle Park, N.J.-based Business Layers.

Netegrity's acquisition will give users a single source for Web access management and user provisioning software, said Giuseppe Cimmino, director of corporate technology at Netegrity's user Discovery Communications Inc. in New York. The purchase will allow for tighter integration be-

tween automated identity administration and user access functions, Cimmino said.

Following Sun

Netegrity's purchase follows a similar move in November by Sun Microsystems Inc. to acquire Austin-based identity management vendor Waveset Technologies Inc. And last month, Oracle Corp. said it's partnering with several identity management vendors to allow users to more easily tie Oracle applications into heterogeneous, companywide single sign-on and application provisioning infrastructures.

The moves are part of a growing trend by vendors to offer users more integrated products for managing identities and application access, said Jonathan Penn, an analyst at Forrester Research Inc. in Cambridge, Mass.

"Organizations are looking at identity management as a single platform rather than as a collection of point products," Penn said. Users can expect to see more companies attempt to transform themselves into single-source identity management vendors through acquisitions and partnerships, he added. **43949**

GAO Audit Recommends EDS Contract Be Revoked

Findings back Lockheed Martin claim

BY TODD R. WEISS

The U.S. Department of Housing and Urban Development's decision last August to award an \$860 million IT services contract to Electronic Data Systems Corp. was unreasonable and the contract should be revoked, according to an audit by the General Accounting Office.

In a recommendation released last month [QuickLink a3950], the GAO ruled on a complaint that had been filed by Orlando-based Lockheed

Martin Information Systems, which held the previous HUD IT services contract. LMIS, which has since been renamed Lockheed Martin Simulation, Training and Support (LMSTS), alleged that HUD misvaluated the business proposals from the two companies and "made an irrational source selection decision."

HUD had put out a request for proposals for IT services — including systems management, information processing, telecommunications and stor-

age, as well as maintenance, upgrades, backup and operation of all computer hardware — for an initial period of one year, with nine one-year options.

The GAO recommended that the EDS contract be terminated if a second bid review process fails to show that the Plano, Texas-based company has offered the best deal.

Michael Fluharty, a HUD spokesman in Washington, last week said the agency is still trying to determine how to proceed in the wake of the audit. "We haven't been told

GAO
General Accounting Office
U.S. Department of the Treasury
Washington, DC 20540

Decision

Subject: Lockheed Martin Information Systems
Date: December 16, 2003
Author: Thomas C. Fugate, Guy, Richard D. O'Connell, and Stephen M. ...

The GAO report said that HUD should re-evaluate proposals from EDS and Lockheed Martin.

that we have to shut down any operations [under the contract], but we are taking a hard look" at what to do next, Fluharty said. HUD has 60 days to discuss the findings with the GAO. "The organizational people within HUD have been meeting to figure out how to respond," he said.

Nettie Johnson, a spokeswoman for LMSTS, said her

Federal CIOs Breathe Easy Over MCI's Reinstatement

GSA ends contract suspension for telecom provider

BY MATT HAMLEN

The U.S. General Services Administration's decision last week to drop a proposal to bar MCI from competing for federal contracts was a relief to some government IT managers, who now can avoid the costly and time-consuming process of switching to other network services providers.

For example, the GSA's decision means that the Social Security Administration can "continue its operations without interruption," said Tom Hughes, the agency's CIO. Social Security receives 65 million calls annually via MCI's network, and Hughes said transitioning to a new vendor would have required shifts in the agency's IT budget.

In November, Social Security and three other agencies, including the Department of Justice and the Defense Information Systems Agency, sought and won exemptions to

the GSA's July ruling that suspended MCI from bidding on new contracts or extensions of existing ones [QuickLink 42506].

The removal of MCI from the government's blacklist of suspended companies also cleared the way for the GSA to issue the company a one-year extension on its share of the wide-ranging FTS2001 procurement contract for data and voice services. The deadline for MCI to seek another annual renewal of that contract was Saturday, and GSA officials said the company had lobbied the agency to lift its suspension in time.

MCI, which is still officially called WorldCom Inc., was

suspended from bidding on contracts after the GSA ruled that the scandal-racked company had yet to adequately revamp its accounting controls and business ethics [QuickLink 40319]. The GSA was weighing a full debarment, but Joseph A. Neurauter, its suspension and debarment official, said in a letter to MCI CEO Michael Capellas that the company has made a "diligent effort" to remedy its internal weaknesses.

However, the GSA is requiring MCI to file regular reports about its ethics and accounting practices for the next three years. That requirement could put all government contractors on notice, said Warren Suss, a federal IT procurement consultant at Suss Consulting Inc. in Jenkintown, Pa. "I believe this MCI case is a wake-up call for the federal contractor industry in general," Suss said.

conduct of MCI and its former officers, and a summary of calls made to an ethics phone line for MCI employees, with details on corrective actions taken by the company.

"It's a very significant oversight role," said David Drabkin, the GSA's deputy associate administrator of acquisition policy. MCI is "on a very short leash," he added.

Capellas, who met with GSA officials several times about the proposed debarment, said in a statement that MCI has "taken extensive steps to ensure the company operates with the utmost integrity." For example, MCI has hired a chief ethics officer and instituted companywide ethics training, he said.

The GSA's decision didn't please some officials, including U.S. Sen. Susan Collins (R-Maine), chairman of the Senate Government Affairs Committee. Collins said she's happy with the three-year monitoring process, but she questioned whether the GSA made the right decision by reinstating MCI while allegations involving the company are still being investigated by federal agencies like the Justice Department and the Federal Communications Commission. **43944**

Government Issue

■ MCI received about \$1 billion in contract payments from all federal agencies during the government's last fiscal year.

■ Over the past five years, the company has been paid \$1.18 billion on the FTS2001 procurement contract, which it shares with Sprint Corp.

Compliance Steps

The reporting agreement calls for MCI to file a total of eight reports, with the first due by April 12. Each report must include how many ethics awareness training sessions were held at MCI and the number of people who attended, updates on the status of state and federal investigations into the

Systems in Transition

Kevin Clarke, a spokesman for EDS's federal government group, said his company has been working to transition HUD's IT systems to EDS since August and that the process is expected to be completed next month. "We remain confident that our solution will remain the best option for HUD," Clarke said. EDS will continue to provide services until the matter is resolved, he said.

The GAO report was critical of the EDS contract award on several counts.

"The record reflects numerous instances where the agency either unreasonably reached conclusions relating to the EDS offer in light of the language included in the proposal (for example, in the areas of single sign-on access and the provision of Oracle database software), or apparently failed to thoroughly evaluate the proposals critically, and in a manner that would have revealed inconsistencies or deficiencies in what was being offered," the report stated.

"We find the agency's conclusions troubling in light of its evaluation of the LMIS proposal," the GAO said.

43933

Flaws Raise Red Flag On Linux Security

But many users remain confident about security of open-source environment

BY JAIKUMAR VIJAYAN

A REPORT last week of a critical flaw in the Linux kernel was the latest in a series of recently discovered security problems with the popular open-source operating system.

But many users were unfazed by the report and said Linux remains a solid and secure environment for running enterprise applications.

Poland-based iSec Security Research last week said it had found a critical flaw in a function used to manage virtual memory on Linux systems. The flaw affects the 2.2, 2.4 and 2.6 versions of the Linux kernel, according to iSec.

The vulnerability could allow attackers to take administrative control of compromised systems and run attack code of their choice, an iSec advisory stated. iSec claimed that it had developed and successfully tested code that was capable of exploiting the flaw, although it added that actually launching such an attack wouldn't be easy.

Wider Target

The news follows the discovery of a similar flaw in the Linux 2.4 kernel last fall. In November, unknown attackers used that flaw to take down several servers belonging to the Debian Project, which produces a noncommercial Linux distribution. And last month, an attack on the Gentoo Linux Project compromised a server that was being used to download copies of Gentoo's Linux source code by users.

OPEN DESKTOP PROJECT

CEO Sam Palmisano challenges IBM to adopt a Linux-based desktop environment:

QuickLink 43960
www.computerworld.com

The rise in such incidents can be attributed to Linux's growing popularity, which makes it a more attractive target for malicious attackers, said David Wreski, CEO of Linux security vendor Guardian Digital Inc. in Allendale, N.J.

"The underground hacker community is very interested in Linux as a potential target," he said. "Because of the accessibility of the source code to everyone, it provides an equal opportunity for malicious at-

tackers to find vulnerabilities and ways to exploit them."

Even so, Linux remains a secure environment, said John Cahill, senior network security engineer at Piedmont Natural Gas in Charlotte, N.C.

"I would say it is more secure than Microsoft and other

environments because the code is looked over by so many people and it's so widely available that any vulnerabilities can be quickly identified and patched," Cahill said.

"There's not very much we've needed to do to secure Linux [applications]," said Joe Poole, manager for technical support at Boscov's Department Stores LLC in Reading, Pa. The company runs several virtual Linux servers on its mainframes that are protected by network and internal firewalls. All nonessential ser-

vices, such as file transfers and Telnet, have been disabled. But there has been no need for the kind of constant patching and maintenance required for Windows, Poole said.

Linux distributors in general are also doing a better job of shipping products that have nonessential services disabled by default, said Paul Schmel, adjunct information security officer at the University of Texas at Dallas.

"The biggest plus that Linux has is that it's designed to allow users to be users and not administrators," Schmel said. "What Linux has that Windows doesn't have is ease of configuration from an administrator's standpoint. Stopping and starting services, configuring services to only respond on certain ports and interfaces is dramatically easier than it is with Windows." **43947**

Linux Security Timeline

NOV. 2003	DEC. 2003	JAN. 2004
Attack on Debian Project Servers	Attack on Gentoo Linux Project	Critical flaw discovered in 2.2, 2.4 and 2.6 Linux kernel

Veritas Plans to Buy Virtualization Vendor to Boost Utility Computing

Ejasent's UpScale supports app transfers between different servers

BY LUCAS MEARIAN

Veritas Software Corp. last week said it plans to buy a small vendor of application virtualization technology in a bid to shore up its utility computing product line, which currently includes server provisioning and performance management tools.

Veritas will pay \$59 million in cash to acquire Ejasent Inc. in a deal that's due to be completed this month. Ejasent's core product, called UpScale, lets IT managers move applications from one server to another without disrupting or terminating their use. UpScale takes snapshots of applications and data and then transfers them to new servers in near real time, said officials at the two companies, both based in Mountain View, Calif.

Steve Rubinow, chief technology officer at Archipelago Holdings LLC in Chicago, runs most of Veritas' flagship suite of storage management tools and said he's interested in using Ejasent's software as a server load-balancing technology.

Archipelago, which operates an electronic stock exchange, uses Sun Solaris servers to match 5,000 to 10,000 orders per second between buyers and sellers during peak trading hours. Rubinow said simple load-balancing techniques don't work because the company needs to be able to copy entire business applications to different servers while trades are being processed in order to ensure that no transactions are lost by the systems.

"You can't just randomly switch from one server to another," Rubinow said. "It has to be able to take the state with it. That's why Ejasent looks promising." UpScale could "give us more flexibility in using our computing environment," he added.

Veritas initially will sell Up-

Scale as a point product, but by 2005 it expects to integrate the software with its Cluster-Server application, which supports system clustering.

Bob Maness, senior director of worldwide product marketing at Veritas, said the next move will be to hook all of the

company's recent software acquisitions into its existing portfolio of server and storage management products. That also should be finished next year, he said.

Veritas last year acquired Precise Software Solutions Ltd., a vendor of application performance management software, and in late 2002 it bought server provisioning tools developer Jareva Technologies Inc.

Rubinow said he's evaluating the Precise software, which would let Archipelago's IT staff set CPU utilization thresholds on servers and receive notifications if the systems are being overtaxed. The fact that Veritas plans to integrate all three of the acquired products is another plus for its tools, he said.

Vernon Turner, an analyst at market research firm IDC, said the Ejasent acquisition puts Veritas into competition with other server virtualization vendors. But he added that if Veritas doesn't move more quickly to integrate the products it has bought into its existing suite of software, "they'll lose the market momentum they may have had with these acquisitions." **43954**

TECHNOLOGY DETAILS

Ejasent's Tools

UPSCALE

■ Adds an abstraction layer between applications and servers so the software can be moved between systems with virtually no downtime

■ Due for release in Q2 on Solaris systems; a Linux version is planned for early next year

MICROMEASURE

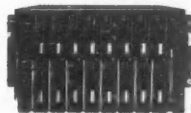
■ Measures usage of servers, storage devices and other data center resources for chargeback purposes

■ Due for release in Q2 with support for Solaris, HP-UX, Linux and Windows



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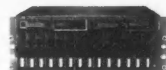


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Continued from page 1

PeopleSoft

IT at Benderson Development Co. in Buffalo, N.Y., said it's unfortunate that PeopleSoft and the user group couldn't reach an agreement for the company to take part in the conference.

"It basically guts the conference of its meat," he said.

"While networking [with other users] is a big benefit, the primary objective is to meet with the software vendor. You can't have a conference without the vendor there."

Market research firm IDC said that 31 of 35 J.D. Edwards users it surveyed recently said that they had either the same view of PeopleSoft as they did when the acquisition deal was announced last June or a more positive one.

In interviews last week, several IT managers said the rift between PeopleSoft and Quest probably won't affect their view of the company. But Mark Federle, CIO at The Weitz Co. in Des Moines, said the way a vendor treats a user group like Quest could cause customers to wonder how well they're going to be treated.

"It would seem like finding a way to serve customers would include being active with a large customer-driven organization," said Federle, who plans to attend this week's conference. The close working relationship between J.D. Edwards and Quest was a factor in Weitz's decision to buy that company's applications, he added.

Keeping Its Distance

PeopleSoft spokesman Steve Swasey said the Pleasanton, Calif.-based vendor formally notified Quest in mid-December that it wouldn't have a presence at the Chicago conference. He added that PeopleSoft is maintaining its distance from the user group and that the organization doesn't represent the entire J.D. Edwards installed base.

"We don't have a relationship with Quest," Swasey said. "It's with J.D. Edwards' customers [as a whole]. We're focusing on what's best for all customers." In response to Mitelski's claim that PeopleSoft emphasizes marketing at its user events, Swasey said the Connect conference is "extremely user-focused," with about 30% of the sessions in-

PeopleSoft Pushes for Plan to Integrate User Groups

Delaine Perkins, the executive director of Quest, said the split between the user group and PeopleSoft began last month, when the company stipulated that it would run this week's conference if it took part.

"They wanted a greater level of control," Perkins said, although she declined to disclose the specifics of PeopleSoft's demands. The Quest board, which is made up of users of J.D. Edwards' applications, rejected the stipulations, she added.

But PeopleSoft spokesman Steve Swasey responded that the company had never planned

to participate in the Chicago conference or subsequent Quest events that are scheduled to be held this month and in February.

Three months ago, PeopleSoft formed a committee of company executives and representatives from Quest and the PeopleSoft International Customer Advisory Board to create "a new, integrated user group model," Swasey said. ICAB already includes more than 170 smaller groups based on geography, industry or products within its organization, he noted.

Perkins said PeopleSoft offi-

cials had indeed made it clear that there would be one major user conference from now on. But she added that Quest officials "wanted to fulfill commitments that had been made and contracted for, and we would like for them to participate."

Quest members have contributed to PeopleSoft's integration planning effort and don't want a public feud like the one that took place in 2000 and 2001 between Oracle Corp. and the independent Oracle Applications Users Group over similar issues, Perkins said.

—Marc L. Songini

volving presentations by customers.

Quest expects about 600 attendees at this week's conference. Delaine Perkins, the user group's executive director, said Quest originally made its plans for the event with J.D. Edwards officials prior to the acquisition by PeopleSoft. The company had been scheduled to run 16 sessions, deliver a keynote speech and exhibit on the show floor, Perkins said.

"We're all disappointed that


PeopleSoft made this choice," she said. But she insisted that its absence won't negatively affect the conference. Quest officials have found replacements for all the sessions the company was expected to run, Perkins said.

William Gabby, North American operations manager at Cargill Inc.'s Global Financial Solutions business unit in Minnetonka, Minn., said he's sending members of his team to the conference. "Without

PeopleSoft's support, Quest's value would be greatly diminished," Gabby said. But he added that he's willing to part with Quest's independent status "if PeopleSoft does not accept it as a value-added organization that they're willing to partner with." **■ 43921**

MORE ONLINE

For previous coverage of J.D. Edwards user issues, visit our Web site:

 **QuickLink 42316**
www.computerworld.com

Continued from page 1

PC Upgrades

machines. MCI's existing PCs were approaching five years of use, and the cost of maintaining them "was becoming problematic," Flanagan said.

MCI isn't alone. DHL Worldwide Express Inc. this year plans to replace 5,000 desktop PCs, amounting to just over half of the installed base for its operations in the Americas region, said Steve Bandrowicz, CIO at The Plantation, Fla.-based package delivery company. The PC purchases are being driven by application and technology upgrades that are needed by DHL employees and customers, he said.

Perry Cliburn, CIO at Hewitt Associates LLC, said the Lincolnshire, Ill.-based human

resources outsourcing and consulting firm expects to buy new desktop PCs for up to one-third of its 15,000 end users as part of an upgrade to Windows XP that started last year and is due to be completed by summer.

Minimizing Maintenance

Wyndham International Inc. plans to swap out 1,500 PCs this year and upgrade the operating systems on an additional 1,000 machines as part of a deployment of Microsoft Corp.'s Active Directory software, said Mark Hedley, senior vice president and chief technology officer at the Dallas-based operator of hotels and resorts.

The replacements and upgrades, which represent about 40% of Wyndham's installed base, should generate significant maintenance cost savings

on PCs "that have been in service beyond their life cycle," Hedley said. He added that the company's IT department hopes to further reduce maintenance expenses by consolidating its installation of Exchange e-mail servers from 63 systems to five.

An industrywide PC replacement cycle "has already started, but the confirmation will come over the next 30 to 60 days," said Bill Zadrozny, CEO of Siemens Financial Services Inc., a Bridgewater, N.J.-based unit of Siemens AG that offers financing for hardware and software purchases.

"Once you get past February, you'll see a strong order flow."

But not everyone expects 2004 to be a banner year for rollouts of new PCs.

Steve Kleynhans, an analyst at Meta Group Inc., predicted that PC purchases by large


companies will rise 5% to 8% over last year's level. Kleynhans noted that lots of IT managers continued to upgrade portions of their PC installations despite the economic downturn, using phased approaches. "It's not like companies stopped buying [PCs altogether]," he said. "They just slowed their buying."

Compared with the boom years of 1998 and 1999, when many companies upgraded their PCs as part of Y2K-readiness plans, corporate spending this year likely will be focused


on "more of a balanced replacement cycle," said IDC analyst Alan Promisel. He predicted that unit shipments of PCs in the U.S. will rise 12.5% this year, compared with an 11.2% increase last year.

At The Burlington Northern and Santa Fe Railway Co., spending on PCs is expected to remain flat compared with last year's level of \$8 million, even though overall IT spending is expected to edge up a bit in 2004, said Jeffrey Campbell, vice president of technology services at Fort Worth, Texas-based BNSF.

The company tries to keep PC purchases at a constant level "to sustain our deepest discounts and to have a controlled and predictable replacement program," Campbell said. "We plan specifically to avoid peaks and valleys." **■ 43953**

 **Once you get past February, you'll see a strong order flow.**

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MARYFRAN JOHNSON

Dive Into Think Tank

READING THE SEASONAL RAFT of predictions about the IT industry for the coming year always makes me a little cross-eyed. That's probably because they're often so ridiculous, so obvious, so wrong or just so useless that I wonder why the industry blowhards even bother to sit around and make them up.

Consider this selection of stunners cobbled from various sources (including our own):

- Mergers and acquisitions will continue among technology vendors. (Who knew? Well, everybody. . .)

- IT spending is going up. No, wait, it's going down. (Honestly? Nobody has a clue where it's going.)

- Open-source will continue to bedevil the Microsoft monopoly. (Let's all hope so. Go, Tux!)

- Wireless technology and Wi-Fi hot spots will continue to proliferate. (Damn! Does this mean even longer lines at Starbucks?)

- Insecure instant messaging will cause a major corporate scandal. (At least that'll be more interesting than accounting exposés.)

"One of the most important trends for 2004 is that, as usual, there is little new under the sun," wrote Judith Hurwitz, president of Hurwitz & Associates, rather sensibly, in her own predictions about where software trends are heading. "If the past decade has taught us anything, it is that solutions must be designed with an equal amount of innovation and pragmatism to solve real customer problems in an increasingly real-time world."

Innovation and pragmatism. Solving real customer problems. Those concepts rang much truer to me than all the future-think guessing games did. So tell me if I'm wrong on this one, but I think what CIOs and senior IT managers are looking



MARYFRAN JOHNSON is editor in chief of Computerworld. You can contact her at maryfran.johnson@computerworld.com.

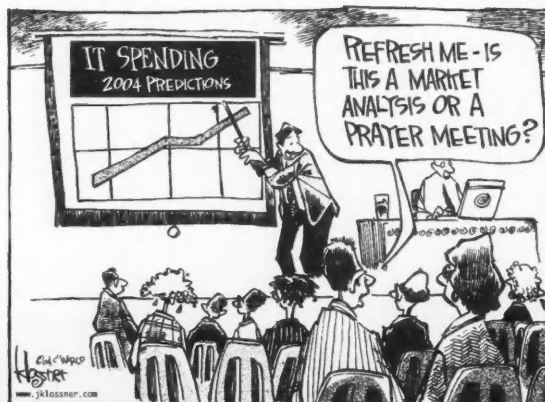
for in 2004 isn't another half-baked guess at what the future holds. What you'd prefer is something more useful, like information about technology implementation and business practices. Or honest insight from your peers about what works and what doesn't. Healthy food for thought in a fast-food world.

That's what we had in mind in creating Think Tank: Brain Food for IT Executives, a monthly feature that makes its debut this week (see page 44, QuickLink 43616). The concept behind it — developed by our Features editor, Mitch Betts — is to corral onto one page and into one quick read a number of short, useful nuggets of information. Innovative ideas that could change or expand your thinking.

In the Steal This Idea column, for example, we provide a short course on the way a technology company in Montana "test-drives" potential new IT staffers. Job applicants who pass the initial screening interviews do 20 hours of programming work on a real project, paid on a consulting basis, to show how well their technical and communication skills match up. Even if hiring is still a distant dream for your IT department, you could park this test-drive concept in the back of your mind for a spin later on.

Another regular feature of Think Tank will peer inside a selection of business and IT books, not to review them but instead to summarize the most useful parts. You may have the time, for instance, to read about the 160 companies profiled in *What (Really) Works: The 4+2 Formula for Sustained Business Success*. But if you don't, how about a few take-away thoughts on the standard question that the authors say all technology investments should be judged by: "Will they significantly lower your costs and improve your productivity?"

So take a few minutes to check out Think Tank. It may not predict the future for you, but we hope it will help you prepare for it. **Q 43911**



PIMM FOX

Open-Source Revs IT Engines

A BOAT with a big Mercury outboard motor from Brunswick Corp. is so retro. What's hot is the company's open-source business integration engine.

Brunswick's technology division, dubbed WDI, built a BIE to connect Brunswick's dealers to its ERP system. With more than 10,000 dealers and numerous distributors, that was no small task. Adding to that complexity, many are mom-and-pop outlets with legacy IT systems (such as dial-up modems linked to an inventory system on a 386-based PC) that made integration and communication with Brunswick's heavy-duty corporate systems almost impossible. But because of the right technology choices the company made in 2001, the integration work continues to excel today.

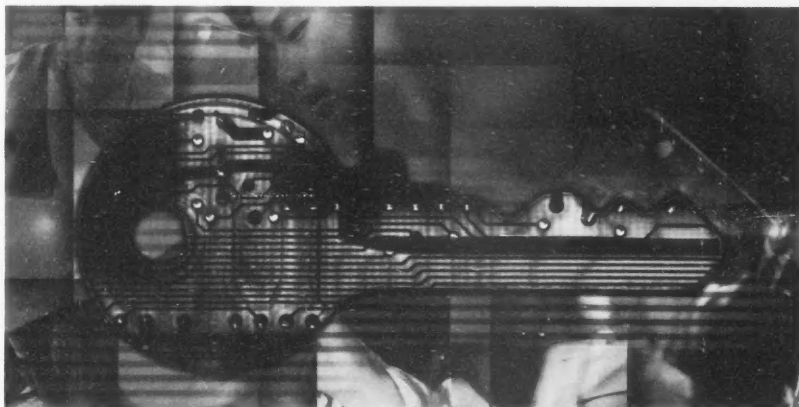
Technology incompatibility wasn't the only problem; users at first didn't want to share sales data with Brunswick for fear of being put at a competitive disadvantage, since all of their inventory data, including that from Brunswick's competitors, would be available to the supplier. And there was hesitation as well because most of the businesses had never let their data outside of their companies before. "Today, dealers and suppliers understand they need an integration strategy," says Michele Lambert, general manager at Vernon Hills, Ill.-based WDI. "They need to cut the cost of re-entering data, faxing purchase orders and handling customer service issues without the appropriate information."

Once on board with the notion of integration, WDI needed to choose a path. But Brunswick's dealers couldn't afford to make the investment in pricey integration tools, says Lambert. You're talking seven figures for integration packages with difficult-to-prove returns on investment.

Electronic data interchange could



PIMM FOX is a freelance writer in Santa Barbara, Calif. Contact him at pfox@csdnet.net.



INFORMATION LIFECYCLE MANAGEMENT IS:

a strategy that uses people, processes and technology to store and tap critical business data throughout its lifespan of value.

IN THIS EDITION:

See how companies are evolving from the traditional notion of disaster recovery as part of a discrete storage and business continuity operation to a more holistic view of information protection and recovery that's rooted in business value.

Information Protection Isn't About Cost; It's About Business Value

IT SEEMS EVERY DAY we wake up to a new challenge to our organization. Like never before, the engines of global economic prosperity—people, capital, infrastructure and information—need to be managed for resiliency in the face of uncertain yet pervasive risks.

Information Lifecycle Management addresses the critical concern of how best to protect information vital to

commerce and public safety. The end goal is an information infrastructure that ensures the availability of critical information anytime, anywhere across the globe. Achieving this goal requires new thinking, technologies and management expertise needed to balance trade-offs in cost, risk and business value.

The challenge is to move toward this goal aggressively while operating within real-life budgetary, process and technological constraints. Information Lifecycle Management helps you do that by aligning the various classes of critical applications and data across your enterprise to the appropriate level of protection and availability.

According to Nancy Marrone-Hurley, a senior analyst at Enterprise Storage Group, a research company in Milford, Mass., applying Information Lifecycle Management practices to information protection and recovery can make a significant difference. "Data availability is one thing, and long-term lifecycle management is

DATA VULNERABILITY PERCEPTION



SOURCE: ROPER ASW STUDY
RISK & BUSINESS CONTINUITY

AVAILABILITY &
PROTECTION

INFORMATION PROTECTION: WHY NOW?

• NEW REGULATORY DRIVERS

Sarbanes-Oxley, HIPAA, Basel II, InterAgency White Paper

• HIGHER MARKETPLACE EXPECTATIONS

Traditional Disaster Recovery which relies on moving tapes from a backup site to a hot site provides a 24 to 72 hour recovery timeframe. Many, if not most, customers won't wait that long before switching to a competitor's product or service.

• BETTER OPTIONS, LOWER EFFECTIVE COST

Hardware and telecommunications costs continue to decline while new availability options such as backup and replication using ATA storage technologies increase.

"When companies had a fairly siloed approach to applications, there were well-defined boundaries."

—Colin Rankine
vice president in
the computing
infrastructure
group, Forrester
Research

another," she says. "The latter helps you know where information is, how to ensure that it's where it's supposed to be and is readily accessible. Information Lifecycle Management helps you prove the integrity of the data as well."

Marrone-Hurley and other experts cite a number of issues that make a lifecycle approach to data protection attractive. The first is the complexity that governs information management. Not only is information growing at an exponential rate, but it's becoming increasingly difficult to detangle applications as they draw information from each other. "When companies had a fairly siloed approach to applications, there were well-defined boundaries," says Colin Rankine, vice president in the computing infrastructure group at Forrester Research in Cambridge, Mass. "But as companies migrate to a distributed application architecture, applications have become interdependent."

The issue of regulatory compliance is also increasingly high-profile. HIPAA, Sarbanes-Oxley and Basel II are just a few of the most visible new regulations that mandate the way that many companies manage and protect corporate data. With the advent of this new regulatory environment, companies must protect information longer and have the ability to recover faster. Moreover, they must protect the right

data—and know when it's time to delete information that's outlived its function. "It's becoming more of an issue, and will likely continue as more regulations appear over the next couple of years," says Rankine.

Many experts recommend the following steps to success for information availability and protection:

LEAD WITH BUSINESS REQUIREMENTS

Many CIOs will conduct a business impact study, which requires conversations with line of business (LOB) peers to get at the true business value of each application. To say it's a ticklish undertaking is to state the case lightly, says Marrone-Hurley. "It's very political," she says. "Nobody in the organization is going to think that their business data is less important than others'."

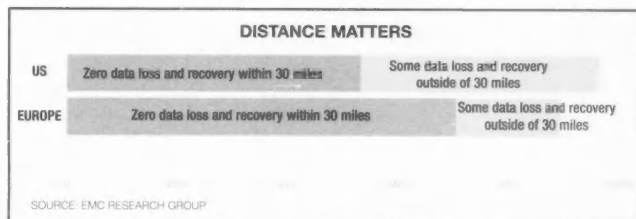
That's why, companies frequently call in outside assessment teams to help conduct the classification study, particularly in industries where regulatory compliance is an issue. "It takes a lot of discipline, and outside experts can provide some very helpful objectivity," says Gregg Therkelsen, vice president of business continuity solutions at EMC.

Once CIOs have an idea of the value of each application, they must formally classify them. Therkelsen advises that IT executives use at least three different categories of service-level importance:

• **Mission-critical**—This includes applications that will, if interrupted, result in severe financial, regulatory or safety issues for the company. "We're talking about systems that are so vital that if they are taken down, they'll severely disrupt the company and potentially broad sections of our economy," says Therkelsen. Recovery time for these applications will be in seconds, minutes or several hours.

• **Essential**—Therkelsen classifies most supporting business systems, such as financial analysis applications, in this category. These systems must not be down more than a day.

• **Deferrable**—This includes applications that contain data that is used periodically, such as market analyses. These applications



Forty-two percent of US IT executives are willing to accept data loss in order to increase distances to their secondary sites. European IT executives are less likely to make this trade-off.

are looking at a recovery time of 24 hours or longer.

Marrone-Hurley points out that business value isn't always related to monetary value. Certain kinds of data, for example, must be stored according to levels of availability and integrity mandated by regulatory compliance, and availability service levels must reflect this.

DESIGN FOR SUCCESS

Armed with a clear agreement on the critical classes of applications and data, the work of designing solutions begins. There are five key design principles for building a resilient, highly available information infrastructure:

Replication. Information is typically backed up so that companies can recover

FIVE KEY INFORMATION INFRASTRUCTURE DESIGN PRINCIPLES

- REPLICATION
- GEOGRAPHIC DISTANCE
- CONSISTENCY
- ACCESSIBILITY
- COST AND PERFORMANCE

from operational failures and major business disruptions as well as archive data in accordance with business and regulatory requirements. These requirements are converging and should be viewed as one enterprise-level business requirement.

Geographic Distance. Consolidating information processing into one center can save money, but it also creates vulnerability to a single risk event. Systems need to be designed for both economies of scale and distribution of information across suitable distances.

Consistency. Data and applications are often backed up at different times of day or week, making it nearly impossible to "restart" the enterprise at a single point in time. Backup and replication to a single point in time is a critical underpinning of a well designed infrastructure.

Accessibility. Anytime, anywhere access to information requires geographically redundant and diverse network connectivity that enables workers to continue operations from various remote locations.

Cost and Performance. The optimum design provides for backup, recovery and high availability in a fashion that is both cost-effective and enables the right level of protection to be applied to the appropriate class of applications and data.

By applying different levels of protection to different levels of information, companies can tie the right price and performance levels to each group of information. "I compare it to how people might protect personal information," says Mark Lewis, the chief technology officer at EMC. "The most important records are in a safe deposit box in a bank, more moderately important records in a fire safe in the house, and others are in a desk drawer. Each method has different costs associated with it that corre-

"Business value isn't always related to monetary value."

Nancy Marrone-Hurley, senior analyst, Enterprise Storage Group

AVAILABILITY &
PROTECTION

spond to the business value of the data."

Further, if the CIO can give a dollar value to the different levels of protection, it allows line of business executives to make decisions based on numbers, not technical jargon. "It enables the CIO to go to a business executive and say, 'If your applications are vital, protecting them will mean an investment of X dollars. If you don't think you want to pay that, you can have less protection for Y dollars,'" Marrone-Hurley says. "This allows the LOB executive to weigh information protection in terms of what it's going to do to his P&L, and they can begin to cost-justify the investment necessary to protect each level of application."

MANAGE CHANGE

Of course, shortly after you classify your applications and design and implement the appropriate level of protection, your business requirements will change and new processes and technologies will be introduced. Any protection and availability program that does not anticipate and allow for this fact is seriously flawed.

Ron Williams, a senior manager at the operation center at EarthLink, a \$1.3 billion ISP based in Atlanta, says his company is working on a tiered storage strategy as a way of managing burgeoning data caches in conjunction with business value. "What EMC has been doing for a while is providing the ability to move data that needs to be accessed faster to storage that can deliver it faster," he says. "So much data changes in value so fast, so we need to seamlessly tie tiers together."

Building a successful alignment strategy is an ongoing process, stresses Therkelsen. "New applications are introduced so fast that we recommend revisiting [a strategy] quarterly, and at a minimum twice annually," he says. "If you don't turn this into a regular business practice, you'll have to repeat the process from scratch a year later."

More and more, companies can use tools to create automated service policies for each level. "That's the value-add we expect to see in software solutions," says

FIVE KEY ENABLING
TECHNOLOGIES

- **CLUSTERING**
Automatic failover to a secondary site
- **OPTICAL AND SONET TRANSPORT**
High-speed data transport for data replication and failover
- **ENTERPRISE-CLASS BACKUP**
Enterprise-wide data backup, leveraging backup-to-disk technologies such as ATA
- **REPLICATION**
Local and long-distance duplication of data to ensure a consistent restart for the enterprise
- **VIRTUAL INFRASTRUCTURE MANAGEMENT**
Ability to run multiple operating systems and applications simultaneously

Marrone-Hurley. "We'll see more intelligence going into software where it monitors service levels and sets policies."

In an era of global data centers and companies that have tightly intertwined supply chains with partners and distributors, the ability to protect information is increasingly vital to the success of the enterprise. As such, companies must manage this task at a very high level, and make sure that their protection and recovery policies are driven by the value of the information first and foremost. Information Lifecycle Management can help do that.

"Our vision of Information Lifecycle Management is a very integrated function where you can specify types of information protection and recovery," says Lewis. "Information protection is something that companies must take very seriously."

NEXT: In the next part of this series, we'll look at new compliance and governance regulations.

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where information lives. Visit www.emc.com/ilm for an in-depth look at Information Lifecycle Management products, services and strategies.

QUESTIONS ABOUT
INFORMATION
LIFECYCLE
MANAGEMENT?

If you've got any burning questions about Information Lifecycle Management—and how you can begin implementing such a strategy—send them to ilm_questions@emc.com. We'll answer the most frequently asked questions later in this series.

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AGENDA INSIDE!
March 7-9, 2004

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- Charting New Directions in IT Governance, Regulatory Compliance and Project Leadership
- Advancing Security and Business Continuity

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Information Technology and
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Economist, Actor
and Educator

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Editor in Chief
Computerworld

SPECIAL GUEST SPEAKER:



BEN STEIN
Author, Humorist,
Lawyer, Economist,
Actor and Educator

AGENDA: SUNDAY, MARCH 7, 2004

Also available at www.premier100.com/cwt

12:00pm - 5:00pm **Pre-conference Golf Outing**
7:00pm - 9:00pm **Welcome Reception**

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AGENDA: MONDAY, MARCH 8, 2004

www.premier100.com/cwt

7:00am - 8:00am

Buffet Breakfast

8:00am - 8:15am

Welcome and Opening Remarks

Maryfran Johnson, Editor in Chief, Computerworld



8:15am - 8:45am

Opening Keynote Address: From IT Expense to IT Value

Glen Salow, EVP & CIO, American Express



At American Express Company, everything rides on the IT "manufacturing plant" forging the value chain for this diversified global provider of travel, financial and network services. During the past few years, CIO Glen Salow has crafted a new value agenda for IT within the company, turning relationships with the business side into partnerships, leading a critical move to outtask the company's technology operations and managing demand for technology services in ways that saved significant expense. As one of the earliest of IBM's "Computing on Demand" customers in 2002, Salow transitioned approximately 2,000 employees in markets around the world to IBM and crafted a similar but smaller deal with AT&T for networking services. The end result is a far more flexible IT infrastructure that responds swiftly to business change. In his keynote address, Salow will talk about recasting IT from a cost center to a value producer, and how IT leaders who concentrate on delivering value will build the best futures for their own companies.

8:45am - 9:30am

Discussion Panel: The Once and Future Infrastructure: An Enterprise Reality Check

Panel Moderator: Patrick Thibodeau, Senior Reporter, Computerworld

Panelists: Perry Ciliburn, CIO, Hewitt Associates; Steven Sheinheit, SVP & CTO, MetLife Inc.; Evon Jones, SVP & CIO, The Dial Corp.; Michael Ashworth, Managing Director & CIO, JP MorganChase Investment Bank



IT leaders are inundated with vendor pitches for autonomic, "on demand," and various forms of utility "pay as you go" computing, but how well do these evolving computing models match the actual needs of the enterprise? Upgrading their aging corporate infrastructures is indeed a top priority for many companies today, but the task involves a complex cascade of decisions around desktop management, server consolidation, blades and clustering, open source, wireless and even outsourcing considerations. Alternative financing and new sourcing approaches also come into play, but what are the tradeoffs? Loss of flexibility and control? Vendor lock-in? This panel of experienced senior IT managers will tackle these tough questions as they talk about their strategies, plans and problem-solving approaches to building out a "once and future" infrastructure primed for business growth.

9:30am - 10:15am

"Best in Class" Project Leadership Lightning Round

Witness a fast-paced trio of user presentations and audience Q&A, featuring the most innovative, high-impact case studies from the Premier 100 honorees.

10:15am - 10:30am Break

10:30am - 11:00am

Evaluating Infrastructure Renewal Through Scenario-Based Decision-Making

Brian Leinbach, SVP of Operations, Delta Technology, Inc. (a unit of Delta Air Lines)



IT managers have long known that the cost of development and initial deployment of IT systems is quickly matched by the cost of system maintenance. In order to communicate this to its parent company, Delta Technology developed a business risk analysis tool that addresses the infrastructure renewal of technology assets by reviewing the following characteristics: technology age, business value at risk, platform supportability, platform complexity and risk of failure. This session addresses how, by developing a standardized risk scoring process and using scenario-based decision processes, companies can evaluate proposed infrastructure investment scenarios and identify mitigation strategies.

11:00am - 11:30am

Concurrent Sessions: IT User/Customer Case Studies

11:30am - Noon

Concurrent Sessions: IT User/Customer Case Studies

Noon - 12:30pm

Concurrent Sessions: IT User/Customer Case Studies

12:30pm - 1:30pm

Interactive Luncheon

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Susan Unger
Senior VP and CIO
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AGENDA: MONDAY, MARCH 8, 2004

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"You hear about six degrees of separation. The Premier 100 melts away a few of those layers. I've met people here that I've known for a long time and others I've been eager to meet for years, all converging in one place."

William Farrow
EVP & CIO
Chicago Board of Trade
Chicago Board of Trade

1:30pm - 2:00pm



The Road to a Service Oriented Architecture: A Pfizer Case Study

Joe Schmadel, Senior Director of Business Technology, Pfizer, Inc.

When Web services made their debut at the turn of the millennium, the world's largest pharmaceutical company, was like most large organizations - looking for a magic bullet technology to tackle application, process, and data integration without a staggering price tag. As a champion for change at Pfizer, Joe Schmadel leveraged this novel technology to transform the firm's financial systems architecture into a nimble, transparent network of powerful methods, which were cheap to create, and even cheaper to maintain. Today, after several years of evolution, Pfizer can now deploy a number of its complex financial applications with virtually any look and feel, and with minimal customization. In this talk, Schmadel will show how the technology, the applications and the people involved helped Pfizer emerge as a leader in service-oriented architecture design.

2:00pm - 3:15pm



Discussion Panel: Riding a Tidal Wave of Change - Data Management, Enterprise Integration and Web Services

Panel Moderator: Don Tennant, News Editor, Computerworld

Panelists: David Thompson, CIO, PeopleSoft; Danny Siegel, Senior Manager of Business Technology, Pfizer, Inc.; Patricia Coffey, Assistant VP, Allstate Insurance Company

Finding the most innovative yet cost-effective ways to manage data and integrate business and technology processes are among the most formidable challenges facing IT organizations today. But there are some compelling approaches emerging. Web services, in particular, hold the potential to enable companies to leverage software technologies (such as Sun's J2EE and Microsoft's .Net) more effectively, develop and build new applications faster, and integrate legacy and Web applications more gracefully. Yet questions about tax security and slippery standards compliance continue to plague Web services. The success (or failure) of integration projects is especially visible across a company's supply chain, in its wireless strategies and in business intelligence efforts. This panel will deliver a lively exchange of experience and advice on the key issues surrounding enterprise integration, including the skill set and cost challenges driving many companies to outsource development.

3:15pm - 3:30pm

Break

3:30pm - 4:00pm



Project Disasters: How to Predict Them, Prevent Them or Pull the Plug on Them

Paul Glen, President of C2 Consulting, Computerworld Management Columnist and Author of "Leading Geeks"

Despite significant progress over the last decade, project success rates are still dismally poor. Only about one-quarter of all IT projects are completed successfully. The rest are canceled completely or finished up late, over-budget and sometimes missing major functionality.

When used well, traditional IT project management approaches can provide excellent information about what happened, but they're lousy at predicting the future. In this presentation, Paul Glen will identify the five leading indicators of project success and show how to use them to predict the future, prevent problems and emerge a hero with technologists and business executives alike.

4:00pm - 4:30pm



Does IT Matter?

Nicholas G. Carr, author of "Does IT Matter? Information Technology and the Corrosion of Competitive Advantage"

Far from being a potent strategic weapon - information technology is increasingly a commodity input - a cost of doing business that must be paid by all but provides distinction to none. Building on his controversial Harvard Business Review article "IT Doesn't Matter," Nicholas G. Carr will show how a combination of technological, economic, and competitive forces has neutralized IT's power to deliver strategic advantage to individual companies. And he'll lay out a new agenda for IT management and investment - one that is focused on containing costs and tempering risk rather than aggressively pursuing innovation.

4:30 - 5:00pm



Why IT Matters

Inventor of Ethernet, Founder of 3Com Corporation and General Partner of Polaris Venture Partners

In this spirited counterpoint to the previous session, Bob Metcalfe will bring his long experience from four IT innovation careers to bear on Nicholas Carr's contentions about IT, which Bob considers - just for starters - in a good natured MIT engineer versus Harvard MBA sort of way, to be complete rubbish.

5:00 - 5:30pm

Mapping the Future of IT: A Debate Featuring Bob Metcalfe and Nicholas Carr

5:30pm - 8:00pm

Expo and Networking Lounge Open, Networking Reception and Buffet Dinner

AGENDA: TUESDAY, MARCH 9, 2004

www.premier100.com/cwt

7:00am - 8:00am Buffet Breakfast

7:15am - 7:45am



Breakfast Address: Homeland Security - Public/Private Partnerships & The Cost of Failure

Dan Verton, Senior Reporter, Computerworld, and author of "Black Ice: The Invisible Threat of Cyber Terrorism" Cyber security is the common thread that ties together the nation's most pressing homeland security and critical infrastructure protection challenges - challenges that could be with us for many decades as the war on terror unfolds. But does the absence to date of a second major terrorist attack on the U.S. indicate that the so-called public-private partnership between the government and the private sector is really working? Or is it quietly failing due to behind-the-scenes conflicts and political skirmishes between the public and private organizations responsible for our common defense? Computerworld's Dan Verton will kick-off a day of security, business continuity and project leadership discussions with a revealing look at what's gone right, what's gone wrong and why failure cannot be an option.

8:00am - 8:15am

Opening Remarks

Maryfran Johnson, Editor in Chief, Computerworld

8:15am - 9:00am



Opening Keynote Address: Sixteen Years of Focus on Improving Corporate Information Security - Did It Make A Difference?

David Bauer, First Vice President and Chief Information Security & Privacy Officer, Merrill Lynch In 1988 at Bellcore, David Bauer and a colleague sent out the first formal security alert ever distributed by a commercial information sharing and analysis center. At the time, it was a breakthrough service. Today, it's merely a typical component of a normal - and massively more complex - security operation. Although concerted effort and significant money have been spent since that time, many business pain points still exist today. In this presentation, Merrill Lynch's Chief Information Security and Privacy Officer will reflect on a decade and a half of information security issues. He'll examine the most critical factors shaping the future of corporate security and privacy leaders, bringing a longtime practitioner's view to the current state of the art and the evolutionary forces driving information security into the next decade.

9:00am - 9:30am



The Myth of Corporate Security: Why CIOs are Mad as Hell and not Going to Take it Anymore

Alan Paller, Executive Director of Research, SANS Institute

From his unique research and training perspective on the security industry, SANS Institute's Alan Paller will start off this session with a live demo of a hacking incident to show just why CIOs are so irate about the poor quality of protection their software and systems provide today. Who is to blame here, and what's being done about it? Why are security staffers constantly fighting a war they never seem to win? What can you do about users who ignore procedure and worsen security problems? What recourse is there against vendors who deliver unsafe systems? In this session, Paller will introduce you to several CIOs who have made dramatic, sometimes harsh moves that forced real change. He'll show what they did and how they did it and, in a couple cases, who got in the way.

9:30am - 10:15am



Discussion Panel: No More Excuses - Responding to the Demands of Data Privacy Laws, Regulatory Compliance and Other Business Mandates on Corporate IT Security

Panel Moderator: Dan Verton, Senior Reporter, Computerworld, and author of "Black Ice: The Invisible Threat of Cyber Terrorism"

Panelists: Marc S. Sokol, CISM, The Guardian Life Insurance Company of America; William Farrow, EVP & CIO, Chicago Board of Trade; Al Brusewitz, Chief Information Security Officer, Chief Information Office, County of Los Angeles

The security agenda for 2004 is long on mandates but short on money, leaving IT to battle with few resources against a slew of malicious attacks, tough new data protection laws and demands for metrics that demonstrate effectiveness of information security procedures. The long list of pressing concerns confronting Chief Security Officers and IT leaders includes regulatory compliance practices, application and network security, spam, enterprise monitoring, benchmarking against standards and disaster recovery responsiveness. How are leading organizations juggling and responding to these myriad challenges? When everything is a priority, how can you possibly prioritize? What kind of metrics are proving most effective in gaining support and understanding from the business side? This panel will hone in on what's working (and what isn't) in their own companies, sharing a wealth of practical advice and fresh insight about how to answer the security challenges facing so many IT organizations today.

10:15am - 10:30am Break

10:30am - 11:00am



Selling Security to Your Beady-Eyed, Bean-Counting CFO

Doug Lewis, Senior Partner, The Edge Consulting Group, Atlanta, and former CIO, InterContinental Hotels Group From the "been there, done that" perspective of a longtime CIO, Doug Lewis will walk you through his methodology for building a business case for security spending with the biggest corporate roadblock of all: the Chief Financial Officer. This presentation will lay out a detailed, three-step process for determining appropriate security levels, building an affordable security plan and mapping out the ROI-based business case that senior executives will respect and support. Lewis will reveal everything from the raw ingredients of building a successful business case to the reasons why IT groups should outsource vulnerability assessments and penetration tests against key systems. He'll also explain the folly of low-balling the TCO (Total Cost of Ownership) of an expensive security overhaul, and provide specific examples (including the math) from several industry case studies.

"Because of the quality of the audience - CIOs, CTOs, VPs - we find this event an important opportunity to talk to key stakeholders who are critical to the IT industry."

Scott Chamey
Chief Security Strategist
Microsoft

Microsoft

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CONFERENCE

March 7-9, 2004
JW Marriott Desert
Springs Resort
Palm Desert, California

To register, visit www.premier100.com/cwt or call 1-800-883-9090.

AGENDA: TUESDAY, MARCH 9, 2004

www.premier100.com/cwt

"I've attended the Premier 100 for three years and I am astounded at how profound the speakers have been. The content of the presentations is exceptional and consistent, and the audience is high-level and deeply engaged. Computerworld has this down to a science."

André Mendes
Chief Technology
Integration Officer
PBS



11:00am - 11:30am



Managing Risk in Outsourcing Deals

Paul Roy, Attorney and Partner at Mayer, Brown, Rowe & Maw of Chicago

There is a unique risk profile to major outsourcing deals, which have more in common with a large merger and acquisition than the standard procurement of IT services. The process of transferring people and mission-critical functions to a third party is fraught with pitfalls and longterm consequences, but there are practical, proven approaches to maximizing value and minimizing risk in these deals. What these complex contracts require is a fundamentally different approach, says Paul Roy, who has advised and represented clients such as P&G, Motorola and Bank of America in some of the country's largest outsourcing deals. In this talk, Roy will cover the most effective risk mitigation devices, contract protection mechanisms and negotiation tactics that every IT leader should know.

11:30am - Noon

Noon - 12:30pm

12:30pm - 2:00pm

2:00pm - 2:45pm



Concurrent Sessions: IT User/Customer Case Studies

Concurrent Sessions: IT User/Customer Case Studies

Expo and Networking Lounge Open and Buffet Luncheon

Discussion Panel: IT Governance, Risk Management and the Future of the IT Organization

Panel Moderator: Julia King, National Correspondent, Computerworld

Panelists: Frank Modruson, Managing Partner and CIO, Accenture; Vince Campitelli, Senior Vice President and Managing Director, Wachovia Corporation; Jeffrey Campbell, Vice President Technology Services & CIO, Burlington Northern Santa Fe Railway; Bruce Goodman, SVP & Chief Science and Information Officer, Humana Inc.

Many CIOs and senior IT executives are moving into expanded roles in 2004, as risk management, regulatory compliance, vendor/supplier negotiations and outsourcing management all become standard components of their leadership roles. But is IT governance ready to evolve beyond its previously narrow focus on technology spending and labor costs - into real partnership with business objectives? How should potential IT investments be evaluated and mapped to company-wide priorities? What skillset changes does the current IT organization need most? Where will future project leaders come from if outsourcing continues its aggressive growth? This panel will focus on these critical issues confronting corporate IT, and offer some experienced guidance on how to prepare for the high-risk changes ahead.

2:45pm - 3:30pm



Integrating Human Capital: The Magic of Creative Adaptive Planning

Moshe Rubinstein, UCLA Distinguished Engineering Professor, and author of "The Minding Organization"

The most important thing to know about planning is that organizations do entirely too much of it, says this distinguished UCLA professor and author. Too many detailed rules constrict an organization's creativity and suck the life out of our capacity for adaptive planning. In his highly engaging, dynamic interaction with the audience, Moshe will illustrate the power of human problem-solving behavior. He will demonstrate the principles of complexity theory and the importance of living in a world that moves beyond its narrow focus on productivity and service and on to better ways thinking and behaving.

3:30pm - 3:45pm

3:45pm - 4:15pm

4:15pm - 4:45pm



Break

Solve My Problem: A Town Hall Meeting on Risk Management and Project Leadership

Moderators: Maryfran Johnson, Editor in Chief, Computerworld; Doug Busch, VP & CIO, Intel Corporation

Mobilize for Innovation

Thornton May, Futurist and Computerworld Columnist

How do we judge technology leadership in today's complex and troubled business climate? Emulating old-think industrialist CEOs is a sure-fire trip to the dust heap of history. True IT leaders understand that the most unambiguous evaluation of leadership is performance - its perception and its reality. Given the powerful technologies available at close-to-commodity prices, the Suits are not out of line in asking, "What value is your IT organization creating today?" It is time to shift the IT engine of growth out of reverse and into overdrive. Tapping into his extensive research and consulting work with hundreds of CIOs, futurist Thornton May will zero in on the reasons so many IT restructurings fail and provide powerful insight from the top of the IT food chain. How are the world's best IT leaders reorganizing IT to transform business and gain control over the IT supply chain? Thornton will rattle your cage and stimulate new thinking about how companies should be mobilizing for the coming age of hyper-innovation.

4:45pm - 5:15pm



How to Ruin Your Life

Ben Stein, Author, Humorist, Lawyer, Economist, Actor and Educator

AGENDA: TUESDAY, MARCH 9, 2004

www.premier100.com/cwt

- 5:15pm - 5:30pm **Final Remarks and Conference Summary**
Maryfran Johnson, Editor in Chief, Computerworld
- 7:00pm - 7:30pm **Cocktail Reception**
- 7:30pm - 9:30pm **Gala Evening: Best in Class Awards Ceremony, Dinner, Honoree Recognition and Entertainment**
Best in Class Awards Ceremony sponsored by



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PRE-CONFERENCE GOLF OUTING March 7th, 12:00pm

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The Pre-Conference Golf Outing at The Palm Course at the JW Marriott Desert Springs Resort, is complimentary (a \$165 value) for registered IT End-Users. (Other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf expenses.)

For details: contact Chris Leger at 1-508-820-8277



**The Palm
Course**
at the JW Marriott
Desert Springs Resort

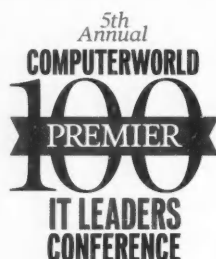
"Peer interaction is an invaluable takeaway from Computerworld's Premier 100 Conference. There's courage in knowing that other IT leaders are dealing with the same issues and you can find corollaries and context in your interactions here. Observing industry leaders makes us all a lot smarter in our own decisions."

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CIO
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IT End-User* Application for Conference Registration



March 7-9, 2004

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All dollar amounts are in U.S. funds; registrations include full access to all sessions, the Expo and Networking Lounge, meals and receptions. Transportation and hotel accommodations are your responsibility. Computerworld reserves the right to limit and/or refuse any registration for any reason.

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Title: _____ Company: _____

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City: _____ State/Prov: _____ Zip/Postal Code: _____

Country: _____ Phone Number: _____ Extension: _____

Fax Number: _____ E-Mail Address: _____

☐ Special Services Required? (Please attach written description)

Would you like to receive information about the golf outing on Sunday, March 7th? ☐ Yes ☐ No

Attendee Profile: (This section must be completed in order to process your application)

Your business/industry:

- ☐ Transportation / Utilities / Energy
- ☐ Mining / Oil / Gas
- ☐ Non-Profit / Trade Association
- ☐ Media / Publishing
- ☐ Banking
- ☐ Finance
- ☐ Accounting
- ☐ Insurance
- ☐ Real Estate
- ☐ Telecommunications
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- ☐ Advertising / Marketing / Public Relations
- ☐ Entertainment
- ☐ Education
- ☐ Food Industry
- ☐ Government / Military
- ☐ Healthcare / Medical Services
- ☐ Travel / Hospitality / Recreation
- ☐ Manufacturing (non-IT)
- ☐ Automobile
- ☐ Computers, Communications or Peripheral Equipment or Software Manufacturing
- ☐ Agriculture / Forestry / Fisheries
- ☐ Other

Number of employees in your entire organization (ALL locations):

- ☐ 10,000 +
- ☐ 5,000 - 9,999
- ☐ 1,000 - 4,999
- ☐ 500 - 999
- ☐ Under 500

Your job title/function:

- ☐ CEO/COO/Chairman/President
- ☐ CIO/CDO
- ☐ VP/GM/Director
- ☐ IS/IT Director/Manager
- ☐ Other IS/IT Department Manager/Supervisor
- ☐ Other Corporate/Business Manager
- ☐ Corporate/Business Staff
- ☐ Consultant (Internal) or Other

The one item that best describes your involvement in the IT purchase process:

- ☐ Authorize the purchase
- ☐ Approve the budget
- ☐ Initiate the purchase
- ☐ Evaluate/recommend products, brands, vendors
- ☐ Identify/establish the need to purchase

What is your organization's primary vendor for servers?:

- ☐ Dell
- ☐ Hewlett Packard/Compaq
- ☐ Hitachi
- ☐ IBM
- ☐ Sun
- ☐ Unisys
- ☐ Other

What is your organization's most mission critical development/implementation project this year:

- ☐ Business Intelligence/Data Management
- ☐ Web Services
- ☐ Mobile/Wireless
- ☐ Network Infrastructure/Storage
- ☐ Security
- ☐ Linux
- ☐ Enterprise Integration

What is the estimated annual revenue of your entire organization?:

- ☐ \$10 Billion+
- ☐ \$1 Billion - \$9.9 Billion
- ☐ \$500 Million - \$999 Million
- ☐ \$100 Million - \$499 Million
- ☐ Less than \$100 Million

What is your organization's annual IT/IS budget for all IT/IS products?:

- ☐ Over \$1 Billion
- ☐ \$500 Million - \$999 Million
- ☐ \$100 Million - \$499 Million
- ☐ \$10 Million - \$99 Million
- ☐ \$1 Million - \$9.9 Million
- ☐ Less than \$1 Million

Payment Method

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- 1) He or she may substitute another attendee for this conference.
- 2) He or she may transfer this registration to Computerworld's 2005 Premier 100 IT Leaders conference.
- 3) The registration fee will be refunded, less a \$250 service charge, if written notice is received by February 16, 2004.

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have been a solution, but with \$20,000 monthly transaction fees for EDI, it would be like getting a sunken boat off a sandbar. Possible, but not likely.

Instead, in 2001 Lambert and the Brunswick team decided to develop their own software and make it available through an open-source license. The XML interfaces of WDI's open-source business engine allow a dealer with a 14,000-part inventory to use low-cost computers and a 14.4Kbit/sec. connection to link and share information with Brunswick.

WDI staff selected Java — mainly because of an abundance of Java programmers — and wrote to an open-source standard using Business Process Markup Language as the model for business rules. They adopted XML schemas, Lightweight Directory Access Protocol and Directory Services Markup Language. They created open application programming interfaces so that if the business engine didn't support something, it would be simple to add.

Going open-source was important because the free software pushed adoption among dealers and distributors. (WDI makes its money on services.) Also, independent software vendors in the marine industry chose to embed the engine into existing products. And with an open-source product, WDI got lots more community feedback.

And you thought the folks at Brunswick were just propeller heads. **43841**

DAN GILLMOR

U.S. Trails World in Mobile Tech

I SPENT AN enormous amount of time traveling last year, much of it outside the U.S. Here are my thoughts on how the U.S. stacks up against other regions of the world for road warriors.

First, technology continues to make life easier and more efficient when it comes to getting your work done once you get to where you're going.

The process of traveling remains a huge hassle, of course, and it takes a toll on personal relationships. But I can remember when it was an enormously cumbersome process to get a

column to my editor if I was anywhere outside the office. Today, I can check into a hotel and, within minutes, be looking up information on the Web or in powerful databases and working inside my company's publishing system.

Second, the U.S. has been lagging much of the developed world in areas that will be crucial to our future, notably in broadband and mobile communications. In some respects, the gap is widening.

Mobile phones have become an indispensable part of my traveling life. Service in the U.S. is improving slowly, but it remains fairly pathetic compared with other countries'. Perhaps the new rules allowing us to change carriers and keep our numbers will help.

Mobile phone makers loaned me several advanced devices to test in 2003, and I come into the new year with every intention of buying a Handspring Treo 600, the first device that combines phone, personal organizer and data communications in a wonderfully integrated package. Not since my



DAN GILLMOR is technology columnist at the San Jose Mercury News. Contact him at dgillmor@mercury.com.

first portable computer has a device made such a difference to my out-of-office existence.

In Hong Kong, where I spent five weeks teaching at the University of Hong Kong, I took advantage of one of last year's best growth technologies: voice-over-IP phone calls. I was renting a small apartment, which came with broadband access. I plugged in my VoIP gear

and, voilà, my local number in Silicon Valley was there, allowing me to make no-cost calls inside the U.S. and cheap calls everywhere else. Soon I plan to use this in hotels that charge extortionate phone rates.

Hong Kong highlighted America's iffy progress in broadband deployment. What U.S. cable and DSL companies sell is a pale imitation of what's delivered in places such as Hong Kong, Japan and South Korea. Unfortunately, U.S. telecommunications giants seem less interested in real improvements than in locking users into restrictive access plans at unreasonable prices.

Mobile communications in Europe and parts of Asia, meanwhile, continue to make U.S. offerings look terrible in comparison. Americans have shamefully lousy and expensive mobile voice and data services, for the most part, a situation that's getting better far too slowly.

Wi-Fi is the one arena of untethered communications where the U.S. is leading. I was dumbfounded to discover that I couldn't sign onto a commercial Wi-Fi access point at a Starbucks in Hong Kong because I didn't have a Hong Kong identity card.

Wi-Fi and its advanced cousins strike me as the most seriously disruptive innovation in communications today. It's spreading globally at a rapid pace. It's a key piece of our communications future.

And maybe it will provide a needed bypass of the traditional telecom giants that tend, on a global basis, to slow progress more than promote it. We can hope, anyway. **43844**

WANT OUR OPINION?

More columnists and links to archives of previous columns are on our Web site: www.computerworld.com/columns

READERS' LETTERS

The 'Dilbert' Test

THE "ALREADY GONE" ARTICLE in Dec. 8 issue (QuickLink 43001) provided suggestions for assessing the risk that middle management may be ready to exit. But I think the author overlooked perhaps the least expensive option: taking a walk through the organization and counting the number of "Dilbert" cartoon strips that are posted. If a "Dilbert" has been put up, the organization has the problem depicted in the cartoon. There's nothing scientific about this, but it's certain to uncover as much or more than a survey.

Michael Giroux
Architect, Interop products,
Bull HN Information Systems
Inc., Phoenix

Stick to Computers

DAN GILLMOR's column "IT Economy: Half-Empty, and Leaking" (QuickLink 43071) was a political statement with no place in your magazine. Gillmor writes, "The recklessness of current fiscal policy is astounding." Save your liberal

ramblings for *The New York Times*, Mr. Gillmor. I open *Computerworld* to read how my job is affected by outsourcing, not macroeconomic simplifications. And when Gillmor rants about how the Fed's policies are "dangerous in their own right" and goes on to link this to the housing bubble, well, not only is his column in the wrong magazine, but he is sadly misinformed. *Computerworld*, please stick to discussions on Oracle, Microsoft, etc., and omit one man's amateur economic and political views.

Bruce Brodinsky
Guardian Life Insurance Co.,
New York

Java Can't Take The Place of Cobol

LUCAS MEARIAN's article "IBM Pushes New Bank Apps" (QuickLink 43037) presented a balanced look at the challenges facing banks as they seek to expose Cobol legacy applications to contemporary platforms, and it's correct that replacement costs are prohibitively expensive for most

companies. However, a few items are worth mentioning beyond the high cost of replacing core applications with Java-based applications.

Documentation provided by DePaul University shows that the risks associated with rewriting core applications in Java are overwhelming. These include costly debugging efforts and time-consuming data conversion compared with reusing and extending Cobol applications. In addition, Cobol's data access performance is battle-tested and known to be significantly better than Java's. As a result, enterprises are increasingly adopting a reuse ideology when it comes to legacy applications.

Finally, Mearian perpetuates the myth that Cobol programmers are a dying breed. Micro Focus has an academic grant program that provides software to universities, and we have noticed a significant increase in the number of schools, courses and students involved in Cobol training. In a recent paper based on a 2003 survey of academic institutions, professors Don Carr of Eastern Kentucky University and Ronald Kizior of Loyola Univer-

sity in Chicago state that more than three quarters of the respondents continue to require learning Cobol as an integral part of their computer science programs, and more than half require a two-semester course sequence in Cobol. Moreover, these students graduate with the requisite skills to work in the mixed programming environments that actually exist in the enterprise.

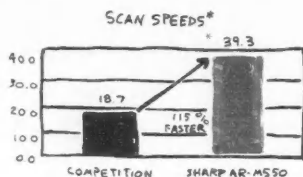
Ian Archbell
Vice president of product
management, Micro Focus
International Ltd.,
Sunnyvale, Calif.
ian.archbell@microfocus.com

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

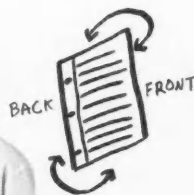
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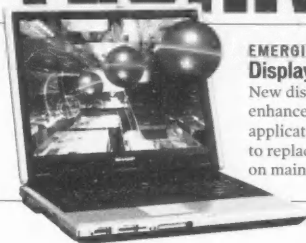
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TECHNOLOGY

01.12.04



EMERGING TECHNOLOGIES Displays Go for Sharper Image

New display technologies offer enhanced picture quality for some applications, but they're not ready to replace the CRTs or LCDs used on mainstream desktops. **Page 28**

FUTURE WATCH System, Cure Thyself

The term *self-healing* has many definitions, but the technology will evolve to allow systems at multiple levels — such as chips, devices and applications — to correct problems automatically. **Page 30**

SECURITY MANAGER'S JOURNAL Priority Scheme Aids Prevention Efforts

A dynamic vulnerability assessment and prioritization scheme improves Vince Tuesday's response times when dealing with new security holes. **Page 34**

DaimlerChrysler Services

GOALS: The merger of Chrysler Corp. and Daimler-Benz AG resulted in the consolidation of the two automakers' financing companies into a new entity, DaimlerChrysler Services, prompting the consolidation of more than 90 systems servicing some 9,000 users.

FIELD REPORT

PROJECT SCOPE: Launched in 2000; more than 350 people worked on the project.

COST: \$80 million

RESULTS: New and upgraded loan and lease systems provide better service at lower cost; 90 systems were consolidated into just 55; they went live on Nov. 1, 2003.

Through careful planning, Lisa Chang and William DeRosa were able to meet all 11 critical go-live dates.

Merging Mainframes

It took a three-year effort, but DaimlerChrysler Services hung on to successfully integrate financial systems at its Chrysler Financial and Mercedes-Benz Credit companies.

By Gary H. Anthes

BY ALMOST ANY MEASURE, it was a big IT project: a price tag of \$80 million; a project team of 350; 9,000 users; 90 major systems; and countless subsystems converted, enhanced or rewritten.

Now, the project at DaimlerChrysler Services North America LLC has wound down to a successful conclusion. "We've had the celebration; we've drunk the champagne," as William DeRosa puts it. But DeRosa, vice president of Information Technology Management (ITM), tells a tale that suggests the company snatched victory from the jaws of defeat at several turns.

As with most corporate mergers, the 1998 marriage of Chrysler Corp. and Daimler-Benz AG was followed by a quest for the elimination of redundant processes and systems. A particularly promising area was DaimlerChrysler Services, the systems-heavy result of the merger of Chrysler Financial (CF) and Mercedes-Benz Credit (MBC). It provides for dealer and consumer financing of the lease and purchase of Chrysler and Mercedes-Benz cars and trucks. Its systems support loan origination, credit scoring and approval, contract management and tracking, billing and payments processing, loan and lease portfolio management, leased vehicle remarketing, and customer communications.

The company's North American unit, based in Farmington Hills, Mich., called the project Portfolio Integration, referring to the merging of the two companies' lease and loan portfolios. But it was a systems integration effort as well, with 90 systems consolidated to just 55. "The intention was to get the two major passenger-car brands to use the same computer systems and processes," DeRosa says. "Cost saving was a driver, but customer service was a bigger driver."

In deciding which systems would survive and which would go, multiple factors came into play, DeRosa says.

Continued on page 26

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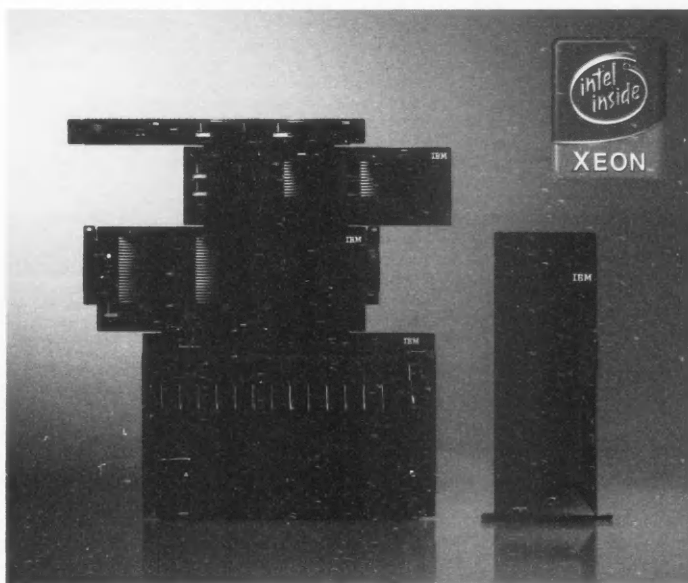
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Continued from page 23

MBC had gold-plated customer service, some of which the company wanted to migrate to CF. MBC's systems were stronger in leasing, while CF's systems excelled in consumer loans. CF's systems were more adept at handling the higher transaction volumes that the combined company would see. And subject-matter expertise in the Detroit area, where the systems would ultimately reside, favored the CF applications over the MBC systems, which ran in Norwalk, Conn.

In the end, the CF systems mostly won out. But many features, especially customer-service elements, were migrated from MBC to CF applications.

A Rocky Start

Despite the champagne ending, the project got off to a "little bit of a rocky start," DeRosa acknowledges. First, most of the MBC IT people in Connecticut refused to relocate to Michigan when the project began toward the end of 2000, so the CF IT people had to travel to Norwalk for long periods to learn the MBC systems. A year later, the company formed an IT Program Management Office (PMO).

"The project was not going very well," he says. "The planning was not coming together, and it didn't appear support was coming for the team." In 2002, a year after the formation of the PMO, DeRosa's predecessor brought in Deloitte Consulting to head it up. When DeRosa became director of ITM

in March 2003, he brought with him veteran IT project manager Lisa Chang and made her director of the PMO.

Despite project management disciplines instilled by Deloitte and Chang, unexpected glitches threatened to derail the project. Even before the merger, CF often overran its nightly batch-processing window, leaving 3,500 employees sitting in front of blank screens the next morning. It became obvious that the situation would become untenable when MBC transactions joined the processing flow.

"We aren't making the nightly cycle, yet we are going to put the Mercedes business into those same processes — plus we are adding code for the Mercedes processes," DeRosa recalls thinking at the time. But a new CPU and extensive system tuning solved the problem, reducing processing time by more than half (see story below).

Then the project scope leapt ahead with the last-minute addition of Puerto Rico to the list of places that had to be accommodated by North American systems. And while the project's scope grew, its schedule shrank. The deadline for completion had been February 2004, but it was accelerated by four months in order to accommodate the November 2003 expiration of a major software license that DaimlerChrysler Services didn't want to renew. That required more people, more overtime and a greater use of outside contractors, DeRosa says.

Despite the setbacks, the company

“The intention was to get the two major passenger-car brands to use the same computer systems and processes.”

WILLIAM DEROSA, VICE PRESIDENT OF INFORMATION TECHNOLOGY MANAGEMENT

met every one of 11 critical weekend go-live dates. Some of the "go-lives" occurred in two phases: the first to upgrade a CF application to new technology and the second to add functions from the MBC systems.

Success Factors

The project's success can be attributed to several things, Chang says, not least of which was careful planning and hard work. "I was here for every one of those weekends, from hour No. 1 to the end," she says. Hands-on project management during the go-lives came from Chang's PMO, whose job was to ensure that critical system handoffs occurred and that certain key test results were achieved. On Labor Day weekend, Chang's checklist list contained 300 activities, she says.

The real key to success, according to DeRosa, was top management support, with members of the Operating Committee for North America willing to go straight to top management in Germany when they saw the need.

"Every two weeks, the Operating Committee would meet, and the first item on the agenda was always integration," DeRosa says. "They didn't want to hear, 'Everything's OK, trust us.'"

For example, accelerating the project schedule wouldn't have been possible without the vigorous intervention of DaimlerChrysler Services' North American CEO, DeRosa says. "In fact, we were under an edict from Berlin not to make any changes in the last couple of months of the year."

But by Nov. 1, the project was done, and users were already reaping the benefits. For example, customers with loans or leases on Mercedes-Benz cars used to have to wait on the telephone while call center operators typed in commands to retrieve information from multiple mainframe systems. Now, the 45 customer representatives at a Mercedes facility in Dallas can make one or two quick clicks on a Web page to get that same data.

That customer service system, called Financial Agent Workbench, is a former CF system that has been adapted to Mercedes, says Dan McAllister, customer services supervisor at the Dallas call center. "The system makes our job a lot easier," he says. "It's more user-friendly." **43556**

UNDER NEW MANAGEMENT

Project management discipline made the difference for DaimlerChrysler Services.

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How DaimlerChrysler Services Did It

TECH CHECK

SYSTEMS INTEGRATORS at DaimlerChrysler Services North America started

with a portfolio of 90 major systems from the merger of Chrysler Financial and Mercedes-Benz Credit. The basic architecture — mainframe, batch, Cobol, CICS and DB2 — wasn't changed. Most of the development work involved changes to applications, including upgrades to functions in the CF applications and adding MBC functions to those systems.

The three core systems for managing the company's 5 million contracts and \$83 billion portfolio of loans and leases were heavily modified commercial packages: LeMans LeaseMaster from FIServ Inc. in Brookfield, Wis., manages consumer lease data; ALS Servicing Manager, from Fidelity Information Services Inc. in Little Rock,

Ark., manages consumer loan data. And InfoLease, from International Decision Systems Inc. in Minneapolis, manages commercial vehicle lending data. The team faced three main challenges in deploying the new systems.

Building the Interfaces

The lease and loan systems together had about 100 major interfaces to other systems, such as accounting, collections, customer relations and ERP, says Tom Mirasol, IT manager for lease systems. "There were a lot of interfaces we had to port over to the Chrysler world, and we had to make that transparent to the Mercedes-Benz dealers," he says. "We did that with middleware... as a bridge and a traffic cop."

The middleware was IBM's WebSphere MQ and WebSphere MQ Integrator messaging products. Web-

Sphere passed data between the two companies' systems and among mainframe applications and Unix-based client/server applications.

Initially, it bridged the old MBC systems with the new systems, passing input and output from one to the other. When the MBC systems were shut down, Mercedes dealers saw no change because the new systems had custom-built front-end "adapters" to convert data formats.

Testing the System

DaimlerChrysler Services had so many systems and interfaces and so much data that the company's existing development environment could not deal with the testing. So it bought a new mainframe, copied over an image of the production machine and dedicated it to user acceptance testing. Users entered their test cases

during the day — some 4,000 for leases alone — and the system executed a full production cycle each night. Users worked with a Notes application to create test scripts, report results and log problems, Mirasol says. Production jobs were modified to send data to both machines, and users could compare balances from both systems each day, says Lynnette Barker, IT manager for retail loan systems.

Scaling Up Production Capacity

When it became clear the existing CF nightly production window couldn't handle the addition of MBC traffic, IT upgraded the mainframe, migrated from OS/390 to IBM's 64-bit z/OS operating system and quadrupled memory. The company also adopted IBM's Parallel Access Volumes feature, which lets the host issue concurrent

I/O requests to one physical disk device as if it were multiple volumes. "That gave us up to 64 active paths to a disk pack rather than one," Mirasol says.

DaimlerChrysler Services optimized the production software by running more jobs in parallel and by running some jobs earlier in the cycle. Barker says. And it moved 4 million loan accounts that had been unevenly distributed across 21 file segments onto 26 evenly balanced segments that could run simultaneously.

Finally, IT replaced a tape backup and restore utility with a disk utility that reduced the time to restore a file with 60 million records from 45 minutes to one minute. As a result of all the tuning and upgrading, the nightly production cycle shrank from more than eight hours to less than four.

— Gary H. Anthes



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
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DISPLAYS GO FOR SHARPER IMAGE

Outlook: New display technologies offer sharper pictures and support for 3-D in some devices. But price and performance issues will limit them to specific niches in the near term. By Drew Robb

COMPUTER VENDORS are always introducing faster processors, bigger disk drives and more memory, but monitors have been fairly stable. LCDs are slowly replacing CRT displays on the desktop, but both technologies are actually decades old. Now two new display technologies promise better image quality for some applications, although neither will replace current desktop displays anytime soon.

OLEDs

The display technology making the greatest advance is organic light-emitting diodes (OLED). Based on research by Eastman Kodak Co. in Rochester, N.Y., OLEDs are just hitting the market in small electronic devices. Although image quality is stunning, acceptance thus far has been slow. But it will become a \$3 billion market by 2009, predicts Kimberly Allen, an analyst at research firm iSupply/Stanford Resources in El Segundo, Calif.

Since OLEDs share core technology with LCDs, manufacturers can leverage the same manufacturing processes. But there is one key dif-

ference: LCD screens contain a fluorescent backlight, and the LCD acts as a shutter to selectively block that light. In contrast, OLEDs directly emit light. "You can think of OLED as an array of light bulbs, while LCDs have one big light bulb and a series of imperfect shutters," says Dan Gisser, Kodak's director of strategic marketing for OLED products.

OLEDs offer sharper and brighter colors than LCDs and CRTs. The pixels have microsecond response times and reproduce motion without smearing. OLED screens also have a wider viewing angle than LCDs. And since they don't require a backlight, displays can be half the thickness of LCDs and can be used in flexible displays. Theoretically, the devices should consume less electricity. And since they don't contain the mercury of LCD backlighting or the large quantities of lead found in CRTs, OLEDs don't have those disposal liabilities.

So when will OLEDs hit the desktop? Current OLEDs are limited to applications such as cell phones, car radios and one Kodak digital camera. Gisser says commercial display products are three to six years out.

Others aren't as optimistic. Barry Young, an analyst at Austin-based market research firm DisplaySearch, says he isn't sure users will ever see the technology used in general-purpose computer displays.

A Display for Every Niche

In addition to OLEDs and 3-D LCDs, several other display technologies are emerging that aren't suitable for desktops or notebooks but may meet other presentation needs. They include the following:

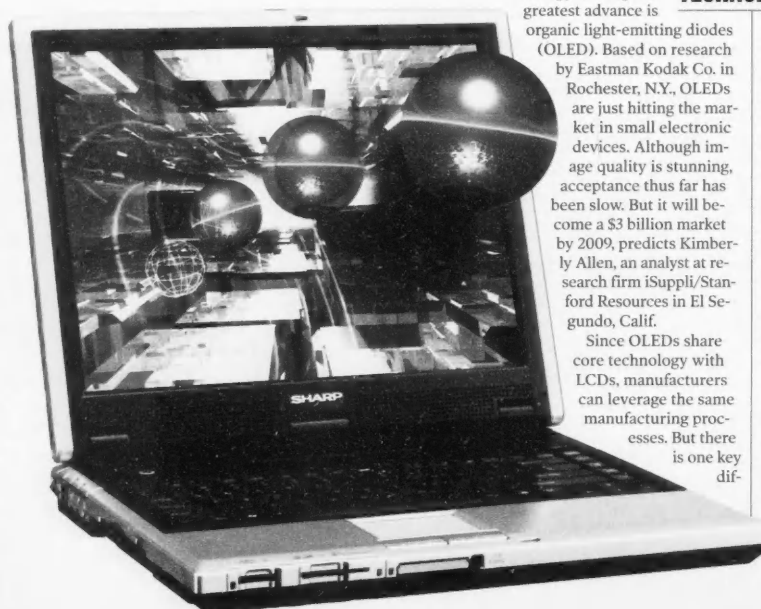
■ **DIGITAL LIGHT PROCESSING (DLP):** This projection technology from Texas Instruments Inc. in Dallas consists of a chip containing 1.3 million minute mirrors that create an image by directing light at a screen. DLP is currently available in two types of products: a stand-alone projector or a digital television that's 70 inches wide and about 12 inches deep.

■ **BISTABLE DISPLAYS:** These displays retain an image without receiving a continuous current. The technology's low power usage makes it well suited for store signage, e-books and other displays that don't change frequently. But current displays support only two colors. Shawn Gettemy, senior director of application engineering and integration at SiPix Group in Milpitas, Calif., says his company is developing a full-color unit but hasn't set a release date.

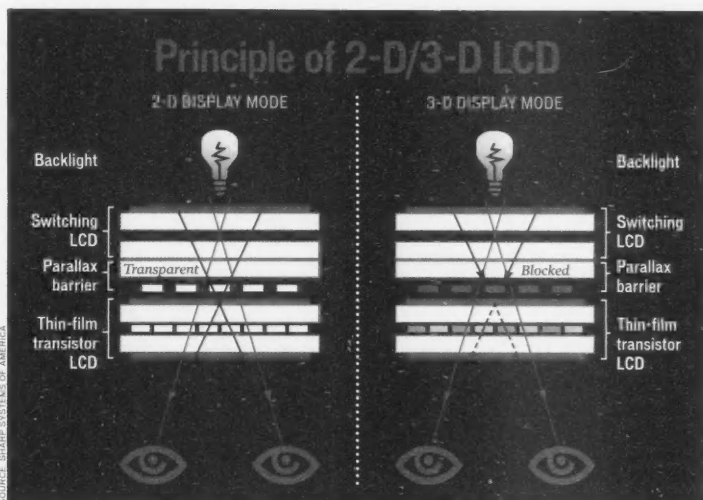
■ **FIELD-EMISSION DISPLAYS (FED):** This is an improved version of the CRT. While a standard CRT uses one cathode and must be set far enough back for the cathode ray to hit all viewable areas, FEDs use many cathodes to reduce the CRT tube depth to as little as one quarter inch. The technique has been around for years but never caught on because of its high manufacturing costs and short product life span. DisplaySearch analyst Barry Young says improvements in both areas may lead to a comeback in 2005.

- Drew Robb

EMERGING TECHNOLOGIES



Sharp's Actius RD3D presents a 3-D image to the user without the need to wear special glasses. (Image is simulated.)



A 3-D display works by emitting light at different angles, enabling each eye to see different images. In Sharp's display, a switching liquid crystal sits behind a standard color LCD and uses a parallax barrier system to selectively block or allow light patterns. When the barrier lets light pass, the same patterns reach the viewer's left and right eyes (left) and the user sees a 2-D image. But when the barrier selectively blocks light, different images reach each eye, resulting in a 3-D image (right).

The problem with using them in displays lies not in scaling up the screen size — manufacturers have already exhibited 20-in. displays — but with the relative instability of the chemicals used in OLEDs. They degrade with use. Although current designs last longer than earlier ones, average display lifetimes are still only about 8,000 hours. At that rate, a OLED display on a PC that stayed on around the clock would last less than a year. And that's when running color graphics. When running a typical office application with black text on a white background, Young says, the expected life drops by 90% because the pixels in the white portion of the screen remain continuously illuminated.

"Clearly, OLEDs are not ready for use in monitors or televisions," says Gisser. "They need to last at least 10 times longer."

3-D Without the Glasses

But if OLEDs aren't ready for the desktop, a new generation of 3-D displays are. Last September, Sharp Corp. released

its Actius RD3D notebook, which includes an active-matrix color LCD that switches between 2-D and 3-D display modes. The RD3D's screen looks like other LCD displays, but it can emit light at different angles so the viewer's eyes see a slightly different image.

A traditional active-matrix display includes a set of diodes distributed across a wire grid behind the LCD glass. These diodes form the basic pixels, or light elements, that make up an image. A 3-D display adds a second matrix, called a parallax barrier (see diagram above). The second matrix stays transparent when operating in 2-D mode. But when the user pushes the 3-D button, the switching LCD sends alternate pixels to the left and right eyes to create the 3-D effect.

The RD3D also includes software from DDD Group PLC in Santa Monica, Calif., that translates existing 2-D images into a 3-D format compatible with the display. The software works with high-end computer-aided design and chemical engineering pack-

ages and converts Microsoft PowerPoint graphics.

Ian Matthew, 3-D business development manager at Sharp Systems of America in Mahwah, N.J., says RD3D's initial market will be in the pharmaceutical, architectural, chemical and automotive industries. Many companies in those industries already use virtual reality software in the design process. "Automotive manufacturers are using virtual reality systems, since a com-

puter model is cheaper and faster to develop and modify than a real mock-up," he says. "This gives them the full experience without having to wear the special glasses."

Since there is minimal difference in the manufacturing process between a 3-D and a normal 2-D LCD, the RD3D, at \$2,999, costs only about \$700 more than a similarly equipped 2-D laptop.

Robin Nixon, who is developing a technology forum site called WebMasterHeadQuarters, is an early adopter of RD3D. "It was the first sub-\$20,000 piece of equipment of its type, so we wanted to evaluate its potential to make 3-D Web sites," he explains. Nixon has been testing the system using Sun Microsystems Inc.'s Virtual Java Runtime software and is compiling a list of all commercial games that will run in 3-D out of the box. He says anything written in Direct3D should run on the system, and DDD Group CEO Chris Yewdall says that applications written in OpenGL or ActiveX work as well.

With Sharp's 3-D technology, images look best when viewed from a specific angle and distance. With the RD3D, the best viewing position is dead center and 21 inches away. But Nixon says he has found three good spots near the middle that allow several people to view the screen at the same time.

When operating in 3-D, the screen's resolution is lower and brightness drops, since each

eye gets only half the pixels, but Nixon says the 3-D effect is worth the compromise. "The 3-D is very strong, with depth ranging from right inside the screen to objects rotating and moving above your keyboard," says Nixon. "You want to try and reach out and touch some of them." Matthew says Sharp plans to release a stand-alone 3-D monitor in 2004. Although it will initially sell at a premium, he predicts that prices will eventually come down into the range of 2-D screens as demand rises.

Who Needs It?

The business value of OLEDs and 3-D may be limited to niche applications. Besides modeling, the main use for 3-D displays today is in presentations. While showing a 3-D presentation may impress an important client, the extra cost is hard to justify for other uses.

OLEDs currently cost twice as much to build as similar-size LCDs. Allen says vendors are using OLEDs only on their more expensive products, so it's impossible to tell how much the screen adds to the overall cost. So if a company chooses high-end cell phones for its staff, it may get OLED screens whether it asks for them or not.

"From an enterprise perspective, people don't need to worry about OLEDs," says Martin Reynolds at Stamford, Conn.-based Gartner Inc. "When OLEDs become competitive with LCDs, manufacturers will start putting them in handhelds and desktops." But he doesn't see that happening anytime soon. Reynolds instead advises companies to look at replacing desktop CRTs with tried and true LCD displays. **Q 43544**

Robb is a freelance writer in Los Angeles.

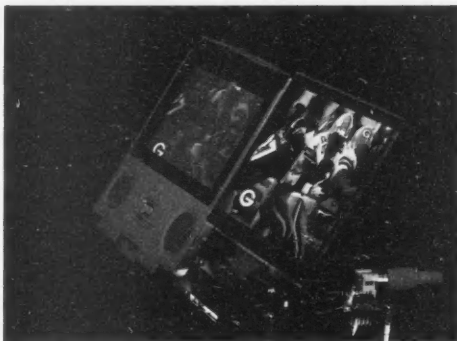
EXPANDED HORIZONS

Extra-large displays could help reduce paper on the desktop.

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A list of researchers and vendors involved with emerging display technologies:

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An OLED display (right) offers a brighter, sharper picture and wider viewing angle than one using a traditional LCD (left).

System, CURE THYSELF,

Self-healing software and hardware are on the way. **BY MATT HAMBLÉN**

SOME YEARS AGO at an insurance company, a server's file-locking process kept failing, and the vendor couldn't produce a patch to prevent it from happening. As a result, a file could be accessed by more than one user at a time.

The company's IT administrator ultimately wrote a custom script that simply restarted the locking process every time it failed, about every 10 minutes. "It was better than having several hundred users mad at me," recalls the administrator, Nick van der Zweep, now the director of virtualization and utility computing at Hewlett-Packard Co.

Van der Zweep's custom code was an early example of self-healing software, a general category that has earned the attention of researchers and vendors such as HP, IBM and Computer Associates International Inc. But many other companies are actively researching and developing self-healing capabilities for their products.

For example, there are already products on the market that automatically correct, or self-heal, components or subsystems such as servers that have reached capacity. (In that case, a program can add more servers or more blades automatically.) But the focus over the next two to five years will be on developing entire networks and systems that self-heal across combinations of applications, storage and computing resources, say analysts and researchers.

Self-Aware Computing

Definitions of *self-healing* vary widely. "Self-healing ... connotes that when there are problems in the infrastructure, the infrastructure copes with them," says Alan Ganek, vice president of autonomic computing at IBM.

For example, Ganek says, when IBM ran the Web site for the U.S. Open tennis tournament in September, software handled workload spikes by delivering computing power from a new server to keep service levels high.

"Self-healing is the capability of any piece of technology to monitor itself and self-diagnose a problem, and then to start a solution that either bypasses or corrects the problem," says Jean-Pierre Garbani, an analyst at Forrester Research Inc. in Cambridge, Mass. For example, HP has products that can detect

when a processor is going to fail by noticing single-bit memory errors in the cache, so that they can automatically turn on another HP processor at a customer site.

With those examples in mind, it is clear that *self-healing* can mean utility computing (as in marshaling resources when needed) as well as autonomic computing (as in correcting an underlying system problem when it occurs).

FUTURE WATCH

Richard Ptak, an analyst at Ptak, Noel & Associates in Boston, says that there is a "great deal of confusion" about the term but that to be truly self-healing, a system must perform four functions: self-monitoring, self-analysis, planning and execution (see diagram below). Today, systems implement the four stages "with varying degrees of sophistication," he says.

The real challenge will be to drive implementation of all four steps to the lowest levels — to the level of devices and circuit elements, Ptak says. He predicts that within two years, manufacturers will have produced self-healing chips, which will support self-healing devices within four years, followed in perhaps another year by organic circuits, which will

adapt themselves in order to correct deficiencies or failures. Manufacturers are likely to form partnerships in coming months to unite the four phases of self-healing, adds Jasmine Noel, Ptak's partner.

Meanwhile, start-up Vieo Inc. in Austin is trying to develop a single device that handles all four functions together, to replace a series of devices built by different companies, she says. Garbani notes that Intel Corp. may dominate the server processor market in five years, which could result in low-cost self-healing chips for servers.

In the Network

Researchers at the Georgia Institute of Technology are working with IBM-donated gear to develop self-healing systems for corporate settings. They are exploring how systems can respond to outages and other events more quickly than they can today, says Karsten Schwan, director of the university's Center for Experimental Research in Computer Systems.

One area of the research will be to find ways, perhaps through "network-aware middleware," to have systems self-heal across network layers, from Layer 1, the physical layer, to Layer 7, the application layer, Schwan says.

For example, TCP today slows the sending of packets at lower network layers, especially when they include rich multimedia content. "But this may not be in the interest of the servers running atop TCP," he says. With appropriate middleware, the application server could decide to take steps to affect the transmission, such as compressing the multimedia content more or marshaling more CPU resources, or maybe even sending a thumbnail of a picture instead of the full picture, Schwan says.

As an indication of the interest in self-healing systems, the Defense Advanced Research Projects Agency is evaluating proposals to support research and testing for its Self-Regenerative Systems program. "Network-centric warfare demands robust systems that can respond automatically and dynamically to both accidental and deliberate faults," DARPA has pointed out in its solicitation for bids. **■ 43636**

Self-Healing Processes

Self-healing means what the user of the term wants it to mean, says analyst Richard Ptak. "For vendors, it generally means whatever they can currently deliver." Ptak defines a self-healing device as one that performs these functions:

Applies various health metrics to determine when there is a problem.

SELF-MONITORING

Uses a knowledge base to pinpoint the source and cause of the problem.

SELF-ANALYSIS

Represents infrastructure relationships and ideal configurations.

LEARNING

POLICY AND KNOWLEDGE

Represents ongoing creation of new policies to automate resolution or modify capacity.

EXECUTION

Makes necessary changes to correct the problem.

PLANNING

Determines the action necessary to correct or work around the problem.

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Priority Scheme Aids Prevention Efforts

Continuous monitoring and escalation of vulnerability priority levels helps focus IT security efforts as the quantity of issues increases. By Vince Tuesday

I'VE HEARD many metaphors for information security, but one of the more interesting ones compares IT security to the field of dentistry. Dentists used to spend all of their time fixing cavities, and information security professionals did nothing but respond to intrusions. Now dentists and security professionals alike focus much more on prevention and less on remedies. Dentists emphasize cleanings, fluoride rinses and sealants; IT security stresses training, patching and removing risks. When IT security professionals assign passwords, they give the same advice as dentists offer when they give out toothbrushes: Change it often, and don't share it with others.

IT security certainly can't be summed up with a single metaphor, but if pushed to do so, I'd liken my team's role to that of the space marines in the 1986 film *Aliens*. In that movie a fearless but fairly naive group of marines are devoured by ravenous alien creatures. The aliens have acid for blood, so most attempts to kill them result in damage from the spraying acid.

For us, the endless series of vulnerabilities we discover in our systems come at us like waves of aliens. We are trained and armed to deal with them, but each response to a vulnerability causes collateral damage. Systems become a little less stable, our administrative teams grow less willing to follow our requests, and my team takes a step closer to burnout. Other than doing what a char-

acter in *Aliens* suggests, "nuke the entire site from orbit—it's the only way to be sure," what can we do?

First we try to get a grasp on what vulnerabilities are coming over the horizon. The sooner we know, the better we can prepare and distinguish the truly frightening vulnerabilities from the minor issues.

Keeping Score

We get information from hundreds of sources, including the Department of Homeland Security, commercial

subscription services, other companies in our industry and even vendors, which often provide the initial warnings about weaknesses

in their products.

Sadly, there's no generally accepted and followed taxonomy or criticality measure for each weakness found. So we have staff that manually assesses the vulnerability information we receive from these sources, and we map it into our own priority levels, on a scale from 0 to 10 (most critical).

We used to just make sure that we addressed the high-priority vulnerabilities, but

SQL Slammer changed that. We initially ranked it low, and because of that, we never got around to fixing it before the worm hit, even though we had a fairly long time between the patch release and the arrival of the code that exploited it. Now we regularly review old low-priority vulnerabilities and promote them to higher levels as time goes by.

But time isn't the only factor that can increase the priority level. We review all outstanding vulnerabilities in light of the threat of exploitation, steadily increasing the priority for each step hackers make toward launching a successful attack on our organization.

The release of so-called proof-of-concept code starts the vulnerability level rising. The priority level continues up a notch when working exploit code is released, widespread exploitations occur and we see an actual attack on other companies in our business. A vulnerability hits Level 10 when an exploit based on it affects our company. That's a rare occurrence, but the Level 10 ranking helps justify those few fixes that must go in immediately. In that situation, it's better to suffer the downtime of a patch and reboot during production hours than to have all the data corrupted by a worm.

We also have a service-level agreement with our IT teams that specifies how long they have to fix the problem at each priority level, and we track this through vulnerability metrics. We calculate that metric for each system by producing a list of vulnerabilities that are present on that system. We take the score for each vulnerability, add them up and produce a vulnerability metric. Then we publish this and slice it by operating system or geographic region.

This attracts management's attention and spurs competition between IT teams to reduce the scores.

Our first attempt gave unknown machines a low score, but those machines, often added to our network by third-party vendors that didn't patch or maintain them, represented the greatest source of problems. So now any system that's unknown is assumed to be vulnerable to all possible weaknesses and gets assigned the highest priority. As the IT team learns more about the machine, the score goes down.

This approach not only works well, but it also caught the eye of senior management, which is applying pressure on the operating system support teams to get their numbers under control. But we don't just use this as a stick. We've been able to help the IT teams use the numbers to justify purchases of management tools and operating system upgrades. With the classic combination of carrot and stick, we've seen real improvement.

Given the complexity of managing patching across multiple operating systems and office locations, it can be hard to decide the best approach. Now we have accurate data about our progress. We've begun to identify the IT teams that manage patches better than average, and we've recognized them and encouraged them to share their expertise with the other global teams.

Will we manage to deal with all the vulnerabilities before we're overrun? Maybe not. But at least management will know we tried. And with accurate metrics they will be able to balance the risk of these weaknesses with the problems of rapid change in our IT systems. **Q 43626**

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum. **QuickLink a1590**

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

Security Bookshelf

Critical Incident Management, by Alan B. Sternecker, Auerbach Publications, 2004.



Just about every book on incident management covers the subject from the angle of preparing for, identifying, responding to and recovering from incidents. Sternecker explains how to avoid incidents in the first place.

His experience comes from his time with the Air Force and the FBI, so he also covers processes and procedures for dealing with incidents. The book is so detailed that it sometimes feels like a dense field guide for auditors who cover incident management. Despite that, it contains many gems, such as the legal aspects of critical incidents, from lawsuits and evidence to reporting requirements.

This book offers many ideas for security managers who are considering setting up an incident management team or want to find ways to improve what they have.

—Vince Tuesday

TrueActive Adds Privacy Protection

TrueActive Software Inc. has added employee privacy controls in the newly released version of its computer activity monitoring software, TrueActive Monitor 5.0. The software, formerly called Win-WhatWhere, can be configured to not capture sensitive employee data such as passwords and credit card numbers from monitored machines. The Kennewick, Wash.-based vendor's software typically captures all unauthorized activity, including keystroke data. Version 5 also allows administrators to buy only specific features or versions focused on the needs of specific vertical markets. Subscription pricing starts at \$100 per year.



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BRIEFS

MySQL Database Ported to HP-UX

MySQL AB has ported its open-source database to Hewlett-Packard Co.'s HP-UX 11.i v2 operating system running on Intel Corp. Itanium 2 processors. MySQL 4.0 supports 64-bit Itanium 2-based systems running HP-UX or Linux. MySQL already runs on AIX, Solaris, all major Linux distributions, Mac OS X, NetWare, Windows and other operating systems, according to the Uppsala, Sweden-based company.

Appliance Monitors Regs Compliance

Gold Wire Technology Inc. said an upgraded version of its Formulair line of infrastructure management appliances will provide expanded support for security compliance verification. The upgrade will allow users to quickly show compliance with regulations such as the Sarbanes-Oxley Act, according to Waltham, Mass.-based Gold Wire. The price for one Formulair with the Compliance Manager module (10 operators and 100 devices) is \$39,750 list.

SGI Launches Midrange Servers

Silicon Graphics Inc. last week announced a midrange version of its high-end Altix line of Linux-based servers. The Mountain View, Calif.-based company said it will offer a 64-bit Itanium 2 server starting at \$12,199. A four-processor configuration will cost \$21,599. The system is intended for technical computing.

BPM Vendor Plans Linux Support

CommerceQuest Inc. in Tampa, Fla., said its Process Manager for Data (PM4Data) tool will support Linux for IBM's eServer zSeries starting in September. PM4Data is a component of CommerceQuest's Traxion business process management (BPM) suite.

PAUL A. STRASSMANN

Outsourcing the IT Infrastructure

INFORMATION TECHNOLOGY EXPERTS find it convenient to discuss the advances of computing in terms of technology "generations." There is a generally acknowledged evolution from the mainframe to the minicomputer, microcomputer, client/server and Internet stages of development. Yet defining IT strictly in terms of electronics doesn't necessarily offer an insight into economic gains.

Technology, in isolation, doesn't give us an understanding of the ideas that have propelled the progression from one stage of development to the next stage. For that, you need to consider the ideas of the 1991 Nobel Prize economist Ronald Coase, which are likely to guide the formulation of IT investments in the future.

The management of IT has always been steered by assumptions about economics. Grosch's Law, formulated by Herbert Grosch in 1953, stated that the power of computers grew as a square function of their costs. For almost 20 years, that simple conjecture (ultimately proven to be incorrect) dictated investments in corporate computing. Whenever possible, you upgraded to the largest mainframe computer you could afford. It was this compulsion that drove IBM to increase its manufacturing capacity for bigger mainframes until this strategy reached its economic limits and drove the company to the brink of bankruptcy.

Of all the computing "laws," I consider only Moore's Law to be based on verifiable evidence. It stated that the power of microprocessors would double every 18 months without corresponding increases in costs. The explosive proliferation of desktop (and laptop) computing propelled the practice of corporate IT for 20 years until it reached its current conditions, where the total costs of ownership have reached economic limits and the growth rate has leveled off, thus driving most suppliers out of business.

Robert Metcalfe's and George Gilder's



PAUL A. STRASSMANN (paul@strassmann.com) anticipates that within the next 20 years, most of the infrastructure supporting corporate computing will be purchased as a commercial service.

formulations extended Moore's Law into the realm of communications. They stated that the value of interconnectivity would grow as a square of the number of connected devices, while the available bandwidth would expand much faster than the capacity of computing.

The multitrillion-dollar collapse of the technology bubble can be best explained as an unwarranted extrapolation of these concepts beyond any sustainable economic limits. Followers of Metcalfe's and Gilder's conjectures have induced

the economic collapse of many communications companies. They bet shareholders' money on business that didn't materialize.

The problem with the Grosch, Moore, Metcalfe and Gilder formulations was that they concentrated only on the supply side of IT and paid little attention to the demand side. Those men were IT insiders who became wealthy from the rising prosperity for which they acted as prophets.

This is where a modestly compensated academic, Coase, comes in. He is the first economist of any consequence who has anything useful to say about information economics.

Coase studied why organizations are formed, what guides their growth and what leads to their demise. He observed that companies will expand until "the costs of organizing an extra transaction within the firm become equal to the costs of carrying out the same transaction on the open market." That is now

known as Coase's Law. It represents an Information Age reformulation of the law of diminishing returns, which applied only to capital assets.

As organizations grow, they become complicated and find it costly to coordinate what they do. Coase observed that there are always companies that can deliver goods and services more economically than the dominant enterprises. If the more efficient companies become organized, they'll squeeze out those that have been unable to manage their resources. The only recourse for the inefficient companies is to shift inefficient functions to external suppliers. Thus, a carmaker will buy batteries from a supplier rather than manufacture them in-house if that's more cost-effective.

IT executives will have to accept that Coase's Law argues for outsourcing every IT function that can be delivered more efficiently by others. Corporate executives will demand that CIOs demonstrate how each element of their in-house IT spending has a lower cost than what's available in the marketplace.

Farming out some of the labor to countries whose wages are a fraction of compensation in the U.S. is a relatively easy decision. The tough questions will concern whether to outsource a part or all of the company's computing infrastructure.

CIOs will have to justify contracting for the management of desktops, laptops or cell phones and having contractors provide security assurance, and they'll have to show that a commercially available standard application service can substitute for the legacy systems that have become unmanageable.

Acceptance of Coase's Law will force CIOs to prove that the total cost of retaining an extra transaction within the IT budget will be less than asking the competitive market to deliver it by means of network connectivity. It will convert every company from an organization-centric environment to a multi-supplier services environment. This new focus will set the agenda for IT management for years to come. **Q 43847**

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MANAGEMENT

01.12.04

QUOTE OF THE WEEK

“Poor alignment [between business and IT] isn’t the result of deficient processes. It’s the result of failing human relationships. And no matter how exquisitely detailed, processes can’t replace relationships.” Page 46

Paul Glen, columnist, IT management consultant



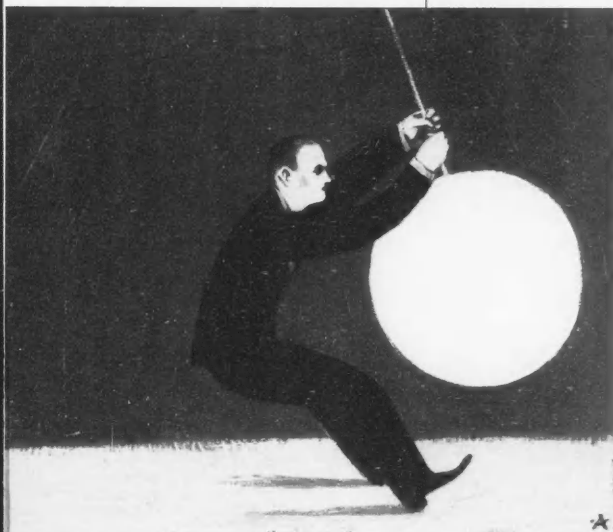
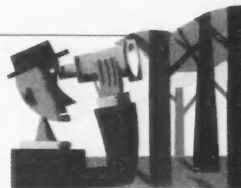
Q&A

Seven Ages of Leadership

Management guru Warren Bennis takes Shakespeare’s famous soliloquy about the seven ages of man and applies it to leadership development. Page 42

The Forest vs. The Trees

Most researchers studying IT productivity look at macro-economic effects, but some observers say they need to look at micro-level factors as well. Page 40



ISABELLE ARRENAULT

Stop THE PENDULUM!

While companies swing between centralized and decentralized IT models, this veteran CIO favors a hybrid governance scheme that combines the best of both worlds. By Doug Lewis

IT’S AMAZING to see companies swing back and forth between centralized and decentralized IT organizational models. Each swing of the pendulum features the firing of the CIO and the hiring of another. Each swing produces cataclysmic disruption and incredible productivity losses. I’ve seen one giant corporation go through five organizational swings and as many CIOs in six years.

So what triggers these organizational earthquakes, and how can you, as a CIO, avoid being a casualty?

Setting aside the more obvious triggers, such as botched ERP or CRM projects, one might assume that the CIO failed to align IT with the business or couldn’t navigate in the company’s executive ranks. Any \$600-per-hour consultant could come up with a dozen reasons, but the most likely answer is that the company adopted a fatally flawed IT organizational model.

Adopt an IT governance model that doesn’t fit the company, or omit a critical aspect of the model, and you’re toast. The odds are against you. There are only three basic IT organizational models, and two of them fail consistently.

First, let’s look at the two most prevalent — and least successful — models: centralized and decentralized. Each can be made to work, but only if it’s an unusually good fit with the way the company is managed overall.

To illustrate the strengths and weaknesses in these two extreme models, let’s use a fictitious company, Alpha Manufacturing Corp., and a fictitious CIO, Sue. I promise you, they spring from my real-life experiences.

Alpha Manufacturing has traditionally exercised strong corporate control over its Americas, Europe and Asia/Pacific regions. Sue reports directly to the CEO and sits on the executive committee. IT is a paragon of finely honed efficiency and touts excellent cost and service-level management.

However, Alpha’s business has eroded over the past two years, and the CEO, Alex, is demanding more revenue and profits from each region. The three regional executives band together to demand more control over the resources they need to make their new stretch targets. They claim that corporate IT is bureaucratic, inflexible, U.S.-centric, slow to respond to regional requirements and usually gets it all wrong when it does respond. The regional executives say the overhead burden needs to be slashed.

Alex hires the Pivot Consulting Group to come up with the fix for the problem. After six months of intense study, the consultancy’s answer is to decentralize IT. Regional CIOs are hired, and each one launches an IT strategy for his part of the world. The corporate IT budget and resources are divvied up across the regions. Regional systems are deployed, and the “costly” central systems are turned off. With little left to justify her job, Sue leaves. With most of the regional IT budgets buried in multiple cost centers and with no financial oversight, it seems like IT costs have been dramatically slashed. Everyone is happy with the decentralized model.

Three years later, Alex is on the warpath. A Sarbanes-Oxley audit has

THREE WAYS TO DO IT

Centralized IT

GOVERNANCE: A strong corporate CIO and weak or nonexistent business-unit CIOs.

- Highly efficient at corporate-wide initiatives.
- Highly visible and predictable costs are easy to manage.

CONS Sluggish bureaucracy. Lack of responsiveness to business units.

Decentralized IT

GOVERNANCE: Strong business-unit CIOs and a weak or nonexistent corporate CIO.

- Highly responsive to local business requirements.

CONS Costs are very high, but hidden in various business units. Corporate-wide initiatives are nearly impossible.

Balkanization of systems and data.

Hybrid IT

GOVERNANCE: A strong corporate CIO and strong business-unit CIOs, with responsibilities clearly defined in a governance document.

- Centralizing big-ticket IT functions saves money.
- The decentralized functions are closely aligned with the business units, providing responsiveness and agility.

CONS Requires detailed, written specification of responsibilities, so it's clear which IT unit does what. Requires a corporate CIO experienced in matrix management and managing shared services.

exposed some serious problems. The corporate financial roll-up can't be reconciled with the company's 25 charts of accounts. No one knows exactly how many employees or contractors are in each region, much less the entire company. An attempt to reorganize the sales force by global customer accounts fails because the company can't find out what and how much it sells to each customer across the three regions. Each region has multiple product and customer codes — and one has three order management systems. The audit exposes the existence of 23 dif-

ferent billing systems. Purchase orders can't be tied to contracts, and deliveries can't be tied to purchase orders. Regional executives show up at executive committee meetings with conflicting reports that are totally at odds with the chief financial officer's report. Embarrassingly, the audit uncovers what the regions are really spending on IT — a total that's three times bigger than the centralized IT budget was five years ago.

Even though the regions are happy with their highly responsive IT organizations, Alex recalls Pivot Consulting to respond to the damaging audit. Its answer is to recentralize IT. Believe it or not, Sue is rehired. She quickly regains control of the regional IT resources and launches projects to consolidate billing systems, charts of accounts and product-fulfillment systems. The CIO racks up huge savings as data centers, global networks and call centers are consolidated. Everyone is happy, for now. Guess what's going to happen in about three years?

We've learned that centralized IT organizations are efficient in executing corporate-wide initiatives and running stable, repetitive global operations. They excel at maintaining low unit costs, and their costs are visible and predictable. But they stumble when asked to be responsive to local requirements and they change direction slowly. Bureaucracy is their fatal flaw. The high visibility of the total IT budget makes costs easy to manage but presents an inviting target. Lack of responsiveness plus visible costs will trigger a swing back to a decentralized model.

Decentralized IT organizations are well aligned to business-unit strategies and are responsive to local requirements. They stay close to their customers and enjoy high satisfaction levels. Their costs are usually much higher than those of any other model but are embedded in the budgets of multiple business units and, thus, nearly invisible. Their autonomous nature makes corporate-wide initiatives almost impossible. They tend to develop countless islands of data, so they're incapable of responding to headquarters' demands for integrated data reports. Once exposed, high costs and Balkanization of systems and data will trigger a swing to the centralized model.

The Hybrid Approach

Now, let's look at my favorite organizational structure, the hybrid governance model. The hybrid model brings together the best features of the centralized and decentralized models and

GOVERNANCE BINDER

The governance document for the hybrid IT model should include the following "section tabs":

- **IT Assets:** How IT assets, including software licenses, will be bought, tracked and retired.
- **Processing:** How processing and network capacity will be acquired, planned, measured and funded.
- **SLAs:** How SLAs will be negotiated, monitored and reported.
- **Technology:** How decisions will be made about adding technologies and, more important, not adding technologies.
- **Data:** How data will be managed, including ownership and custodial responsibilities.
- **Funding:** How funding decisions will be made for potential new projects at the business units and the shared-services center.
- **Security:** How to define and attain prudent levels of data security and physical security.
- **Costs:** How to allocate the shared-services center's costs to the business units.
- **Responsibility:** Who pays for what.
- **Portfolio:** How to manage the portfolio of shared applications.
- **Alignment:** How to align IT planning with corporate and business-unit priorities.

— Doug Lewis

avoids the extremes that often doom them. It uses a shared-services group to centralize functions that benefit from economies of scale and don't have to be highly agile. And it decentralizes functions that are close to the customer and have to be responsive to fast-changing market conditions and business-unit strategies. Usually, the decentralized IT group reports directly to the business-unit leader and, ultimately, to the CIO.

Data center operations, WANs, security, shared applications such as ERP and "plumbing" systems like e-mail are examples of functions that end up in the shared-services center. Maintenance, help desk operations and development of shared applications are handled by the shared-services group with heavy business-unit input. Centralizing these "big-ticket" functions yields major cost reductions. In this shared-services group, managers are driven to provide operational excellence at an ever-decreasing unit cost.

Meanwhile, LANs, regional help desks, engineering and manufacturing automation, facilities support and sales support are functions assigned to business-unit IT groups. As a rule, any function that isn't shared across several business units is a candidate for the business-unit IT group. The goal is maximum responsiveness and alignment with the business units — even if costs increase. The added cost is more then covered by the savings produced by the shared-services center. The decentralized IT managers are driven to make their business units successful.

But even the hybrid model has a potentially fatal flaw, which lies in the interface between the shared-services group and the business-unit IT groups. Unless there's a clear set of specifications about roles and responsibilities, important stuff can get dropped or screwed up. Each side will make assumptions about who does what that are frequently wrong and can result in disasters. I call this set of rules the "governance document" (see sidebar, above). Not flashy, but effective.

It's much more than a rule book. It describes the working relationships between individuals and groups, applications and networks — and the company and its vendors. Most important, it describes how disputes will be handled and how the document will be kept pertinent to the tasks at hand. Done right, it's a living document used to operate the business of IT every day. I think it's the "secret sauce" of the hybrid model.

If your company is extremely centralized or extremely decentralized — and you're feeling brave — go ahead and adopt the matching IT organizational model. But if you want to be safe and possibly extend your career, adopt the hybrid model. It fits most businesses and accommodates change gracefully. But don't forget the secret sauce — that all-important governance document. **43476**

Lewis, a CIO for 17 years, is now head of The Edge Consulting Group LLC in Atlanta. He can be contacted at edgeconsulting@bellsouth.net.

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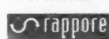


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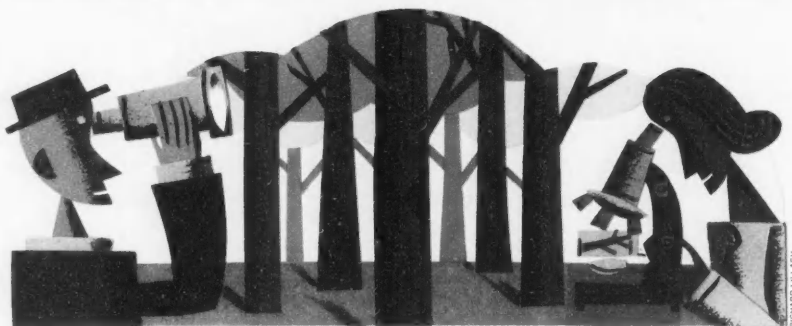
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The Forest vs. The Trees

Most researchers studying IT productivity look at the macroeconomic effects, but observers say they need to look at micro-level factors, too. By Thomas Hoffman

IT ECONOMICS

RESEARCHERS TRYING to figure out whether billions of dollars in IT investments

have really boosted productivity typically rely on government labor statistics to produce broad, macroeconomic studies.

But critics say such macro-level research provides a limited view of IT productivity and fails to address micro-level factors such as revenue enhancement and customer retention — key criteria in a services-led information economy.

Most recent studies by academics and economists, such as MIT's Erik Brynjolfsson and Harvard University's Dale Jorgenson, have concluded that IT has had a positive effect on labor productivity overall. But that broad finding isn't specific enough to help IT organizations, business observers say.

The problem with a macroeconomic study is that it's "nothing you can present to a board of directors," says Paul A. Strassmann, a *Computerworld* columnist and a former CIO.

"The work that's being done on a macro level is fine," says F. Warren McFarlan, senior associate dean at Harvard Business School. "But there's more work that has to occur on a micro level," such as examining IT's effect on revenue retention and growth through new products and efficiencies, he says.

In addition, there are intangible benefits that IT can deliver to an organization. At General Motors Corp., for example, the use of collaboration technology can help "take friction out of working with deal-

ers," says Daniel G. McNicholl, chief strategy officer in GM's information systems and services group.

Carla O'Dell, president of the American Productivity and Quality Center in Houston, says economists should drill down into functional areas within a company, such as manufacturing or finance, to evaluate

The Lag Effect

Growth in productivity, which is generally defined as output per unit of worker input, has chugged along at an annual rate of more than 4% since early 2001, after rising 2.6% per year from 1996 to 2000 and about 1.5% before then. Some economists and researchers maintain that the massive investments companies made in IT during the go-go days of the late 1990s are just beginning to blossom and are being borne out in today's productivity figures.

"The reason we're having such strong productivity growth now is that firms laid the foundation for this growth five years ago with the IT investments they made then," says MIT professor Erik Brynjolfsson.

One problem with most IT productivity research is that it's based on quarterly or annual comparisons, whereas some productivity gains aren't immediately realized because "some IT investments have more of a long-term effect," notes Howard Rubin, executive vice president at Meta Group Inc.

— Thomas Hoffman

IT's impact on revenue and output. Problem is, researchers and economists "don't have the money to do that," she notes.

Drilling down would also allow researchers to identify specific productivity problems. For instance, activities such as Web surfing and instant messaging have put some degree of drag on productivity, though it might be difficult to measure, says Chris Truesdell, director of technology at QuikTrip Corp., a Tulsa, Okla.-based operator of 405 convenience stores.

Researchers are cautiously optimistic that microeconomic studies in the future could measure the impact of IT on revenue and customer satisfaction, though obvious obstacles remain, such as getting relevant corporate data. Jorgenson says it's still difficult to measure the output generated by software. Although Jorgenson says he's hopeful that continuing research in this area might yield some insights in the next three to four years, "at the moment, there is a big gap in the statistics."

A few researchers have tried to go beyond the usual macroeconomic studies. Strassmann has maintained for years that the only useful way to determine the impact of IT investments on productivity is to analyze corporate sales, general and administrative (SG&A) costs. Lower SG&A costs could indicate that IT has cut administrative overhead.

In September, Strassmann published the results of an SG&A/productivity study he conducted with Alinean LLC, an Orlando-based IT consultancy. The evaluation of 20,000 companies revealed that the ratio of SG&A costs to the cost of goods has remained relatively flat for the past 10 years, suggesting that "businesses haven't gotten more efficient" over the past decade, despite IT investments, says Tom Pisello, president and CEO of Alinean.

Other researchers have looked at IT productivity in specific industries. Services industries, such as retail and financial services, account for 80% of hardware and software purchases and have seen the biggest productivity gains, according to Jorgenson. Meanwhile, traditional goods-producing industries, such as agriculture, have lagged in productivity because they're not as tech-intensive, he explains.

In a late 1990s survey of low-tech automotive suppliers that was conducted by Ohio State University, 78% reported that IT applications and business-to-business e-commerce had a positive effect on productivity, says Pari Sabety, a researcher at The Brookings Institution in Washington and former director of the technology policy group at Ohio State's Fisher College of Business.

But when asked where they saw productivity improvements, many of the automotive suppliers cited "improved communications" — an intangible that's hard to quantify — rather than more concrete metrics such as tighter inventory turns or higher revenue. "How the hell do you measure improved communications?" Sabety asks.

Sabety says it's hard to determine IT's effect on productivity by measuring just one area, such as SG&A costs; instead, look at various areas across the corporation. **42874**

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Seven Ages Of Leadership

Warren Bennis takes a page from Shakespeare to illustrate the growth of effective leaders.



Warren Bennis got his first taste of leadership as a green, 19-year-old lieutenant during World War II. In January's Harvard Business Review, he says that those days were in many ways typical of first leadership experiences anywhere. Bennis,

who has written more than 25 books on leadership and change and currently serves on the faculties of the University of Southern California and Harvard Business School, says that Shakespeare's seven ages of man apply to leaders as well. He explained to Kathleen Melymuka how knowing what to expect at each age could help you survive and grow as a business leader.

Tell me what your introduction to leadership in wartime Belgium taught you about the "infant" and "schoolboy" stages of leadership. I was a kid when I joined a seasoned infantry company, but I was able to abandon my ego to their talents, and they helped me be of use to them. They trained me. An IT officer isn't an infant but, still, allowing some vulnerability is a way of enrolling people to help you become a better leader.

You mention that people often form an opinion of a new leader before they've even met. In IT, that opinion is often negative. How can a new IT leader get out from under a negative initial perception? We had a new IT officer in an organization I know, and what surprised everybody was that he was not just a geek. He was open. He had a sense of humor, a broader conception of life. He kept those eyebrows raised. People are often intimidated by technical people and a language they

don't know, and they like to see the human characteristics of the person come through. Whatever their domain, the successful leaders really seem to keep the organization's goals in mind, not just their own specialty.

In the third age, what should an IT worker be careful of as he moves up to management? There's always a little unease dealing with former peers. First, you have to be concerned about management of resentment of people who didn't get [the promotion]. Be very aware not to step on the toes of people who feel hurt. Second, the rules do change, and you may get a different perception of former peers when you're in position of being their leader. The roles you play really change, and you've got to be aware of that from both points of view. Try to keep them from feeling that they're being disenfranchised because you can't spend the time you used to with them. And part of the strain is giving up what you love to do in order to manage people who are doing it.

You say that a novice leader has to learn who to pay attention to. How does a leader distinguish the energy-sappers from the people who deserve priority? It's rough. People who seek you out at first may feel under-recognized and want to make up for things they were not getting from their previous boss. They can be needy, and you can't always trust what they say. When you're coming in as stranger, you have to trust your instincts about sizing people up. You can be helped by people who are highly valued and respected in the organization. Get their opinions about who you should spend time with. Use them to help you evaluate your sources of information and whether these are constructive people who share your goals. You have to identify the right co-conspirators to create change.

In the next age, the leader becomes comfortable in the role. What are the dangers at this point? As a leader, something you're not used to is that your words take on added weight to those who report to you. You might mumble, "Wouldn't it be nice if..." and suddenly it happens, and you say, "But that's not what I really wanted." There's a thing I call the Pinocchio Effect. It's like that game where you whisper something around a circle, and it becomes a total grotesque. It's the same with a leader. What he wants can get totally distorted. So you have to be very careful. What may seem a simple idea you're just puzzling about can be translated into action before you know it. Be more careful about your words and

Seven Stages

In a famous soliloquy from *As You Like It*, Shakespeare maps out the seven stages of a man's life. Warren Bennis says those phases apply just as well to the development of a leader.

Infant: The would-be leader
Challenge: Recruit a mentor.

Schoolboy: The novice
Challenge: Make a quiet entry and feel your way.

Lover: Moving up the ranks
Challenge: Set boundaries. Learn who and what to pay attention to.

Soldier: Comfortable in the role
Challenge: Weigh your words and actions carefully. Nurture others.

General: At the height of power
Challenge: Listen for dissent. Rally the troops and act.

Statesman: Power on the wane
Challenge: Use perspective and wisdom to serve as a pinch hitter.

Sage: The retiree
Challenge: Serve as mentor for a young leader.

how they will be interpreted.

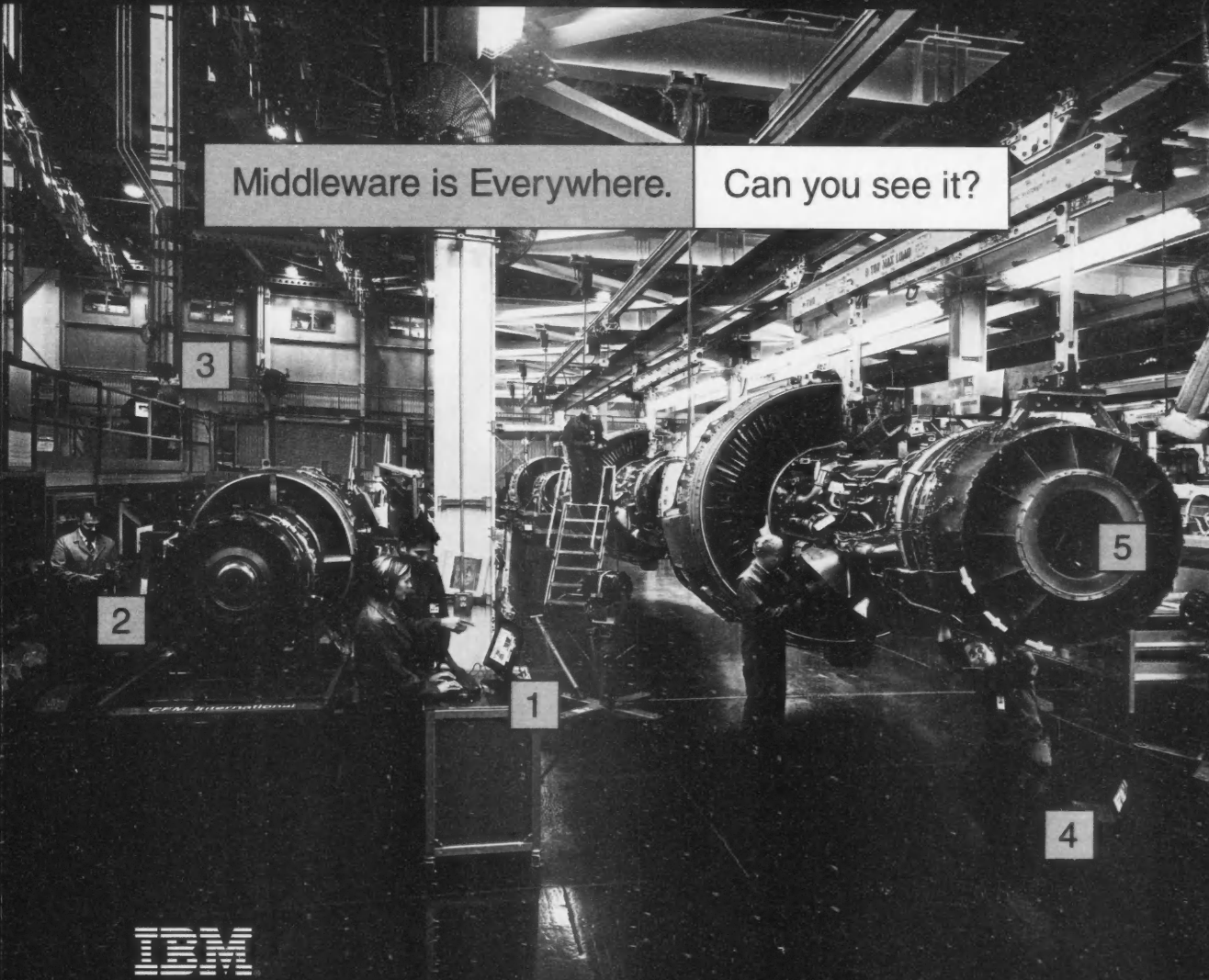
Can you talk a little about the challenge of nurturing people - even those who may ultimately outpace you? The best leaders are educators, and they really do enjoy bringing on people who can outperform them. It takes security and self-confidence and self-esteem to do that well. I've known people who kept down brilliant people because they felt they would be upstaged. But most leaders are proudest of a bench of terrific people behind them. This is something organizations don't do enough of. I don't know any that have a roster of terrific mentors and rewards them.

When the leader is at the height of his power, a big challenge seems to be to keep his ears open. What should he be listening for? Disconfirming voices. He needs to widen the number of people he ordinarily speaks with. When George Bush was so surprised at the anger toward the U.S., a reporter asked him where he got his information. He said from his direct reports and "others I trust." That's not enough. It has to be much wider. It pays to listen to people at levels way below you — both drilling down and widening. As a leader, you have to be totally aware and keep modeling that you really want the truth; no kidding.

The statesman age, when power begins to wane and the leader passes on his wisdom, can happen early in IT. How can an IT leader be effective during this age with the technology changing beneath him? You have to keep up with changes in your field, especially [as] an IT person. There is more change there than perhaps in any other part of business. You need to have a special appetite for learning and keep up with the excitement. Recent examples: Jerry Grinstein, 71 — just named CEO and chairman of Delta Air Lines. John Reed, [64], takes over as interim chair of the New York Stock Exchange board. Harry Stonecipher, 68, just took over Boeing. Three examples of geezers who have been recalled to active service. Why them? In all cases, they're continual learners. They keep alive, robust, physically active. You can even hear it in their voices. You can even take me: Do I sound like I'm 79?
Q 43713

Melymuka is a Computerworld contributing writer. She can be reached at kmelymuka@yahoo.com.

This is the latest in a series of monthly discussions with Harvard Business Review authors on topics of interest to IT managers.



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ThinkTank

BRAIN FOOD FOR IT EXECUTIVES

Test-Driving IT Job Applicants

STEAL THIS IDEA

SOME IT JOB SEEKERS don't handle the pressure of a job interview well. And some don't handle the pressure of a skills test very well. So RightNow Technologies Inc. in Bozeman, Mont., has come up with another way to evaluate applicants: the test-drive.

At RightNow, IT job applicants do 20 hours of programming work on a consulting basis after they've passed the résumé-screening process and completed a follow-up questionnaire. By the time they're ready for the test-drive, "we're on the third date at that point," says Susan Carstensen, chief financial officer and head of human resources at RightNow.

The applicants work on their own time and earn money at an hourly rate that's equal to what they would make if they were hired. The task isn't a canned project; it's something the software development shop is really working on, like enhancing an HTML widget, says Mike Myer, vice president of development.

Some applicants don't pass the test-drive because their technical skills don't match the alphabet soup on their résumés. Others don't get hired because of poor personal



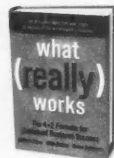
skills, such as "painful communications," Carstensen says.

The result of the test-drive is that the fast-growing company gets IT people with "the right fit," which translates into lower-than-average turnover, she says. And prospective employees get to see if they like the company, the work and the location in Montana. — Mitch Betts

Best Bits

The most useful parts of recent business and IT management books

THE BOOK: What (Really) Works: The 4-2 Formula for Sustained Business Success, by William Joyce, Nitin Nohria and Bruce Robertson (Harper Business, 2003).



The book discusses a study of 160 companies conducted to determine why some were winners and others were losers from 1986 to 1996, based on their total return to shareholders (TRS). The bad news: "Developing superb technology" didn't produce TRS winners or sustainable competitive advantage. The good news: One of the four strategies employed by the winners was "flawless operational execution," an area where IT can play a big role. In addition to satisfying customers, this strategy requires slashing operational costs while boosting productivity by 6% to 7% every year, the au-

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thors say. "Technology investments must always be judged by this standard. Will they significantly lower your costs and improve your productivity?"

Another area where IT can help produce business winners is in innovation, the book says. The TRS winners were more likely to introduce "disruptive technologies and business models," as well as to use technology to design new products and enhance operations. — Mitch Betts

Research Roundup

■ Companies can cut the cost of managing their accounts payable operations by up to 90% simply by reducing the use of paper-based processes, according to The Hackett Group, a unit of AnswerThink Inc.

■ Employees in the IT department, compared with those in other departments, are most likely to view their company as "overmanaged," meaning that bureaucracy and politics are hindering action, according to a study of business's "organizational DNA" conducted by Booz Allen Hamilton Inc.

■ Watch for more mergers in the insurance industry this year, says the Tillinghast consultancy (a division of Towers Perrin). On average, there could be a significant deal every month for the next 24 months, as the industry players decide that bigger is better. Insurers will also be obsessed with using financial models for risk management, Tillinghast says. ☎ 43616

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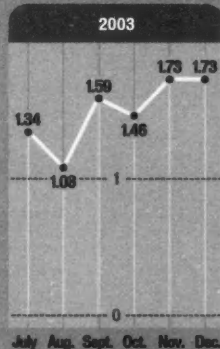
The IT Economy

■ IT spending won't rebound until corporate profits are up for several months, thus giving CEOs the confidence to increase capital spending, economists say. Watch the financial services industry for signs of a high-tech recovery, adds Goldman Sachs & Co., because it tends to be the bellwether of IT spending. In the late 1990s, that sector "foreshadowed tech's downturn by cutting IT budgets early and often," a Goldman Sachs report says.

■ Gartner Inc.'s Technology Demand Index shows that executives in the private and public sectors continue to show caution in their IT purchases by spending well below their budgeted levels — not a promising sign for the IT recovery. Most executives at companies whose fiscal year ended in December said they lost any IT funds not spent by Dec. 31; only 30% said they were able to carry unspent 2003 funds into the new year.

Corporate Technology Confidence Index

Corporate IT buyers remain cautiously optimistic that IT spending will grow in the coming months, though the confidence index was unchanged in the latest tally.



Base: 120 corporate IT buyers. An above-zero score indicates more positive responses than negative.

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BRIEFS

Blue Cross Renews Contract With EDS

Blue Cross and Blue Shield of Massachusetts Inc. has renewed its IT outsourcing contract with Electronic Data Systems Corp. in order to lower computing costs and implement an administration and finance system that will improve health insurance services for members and partners. The 10-year, \$320 million agreement also includes Web hosting, desktop, mainframe, WAN, middle-ware and integration support.

UTC Expands IT Outsourcing Deal

United Technologies Corp., a Hartford, Conn.-based provider of building systems and aerospace products, has expanded its IT outsourcing contract with Computer Sciences Corp. to include more than 460 sites in Europe. The overseas services, which will run through 2014 and add \$212 million to the existing \$4 billion contract, include mainframe, midrange, desktop, LAN and help desk support.

ING to Start Utility Computing Project

ING U.S. Financial Services plans to implement IBM's on-demand model in the hopes of consolidating its mainframe and midrange computer operations and business processes. The seven-year, \$600 million deal with IBM also includes help desk support and services for wireless, voice and data networks.

IT Pioneer Retires From Online Lender

James Walker, CIO and executive vice president of WMC Mortgage Corp., retired last month, ending his 40-year career in IT. Walker, 60, joined the company in 1993, when it operated as Weyerhaeuser Mortgage. He became executive vice president in 1997, when the company became WMC. Walker spearheaded WMCdirect, an automated underwriting system that helped WMC become one of the first online lenders.

Embrace Politics to Enhance Alignment

PAUL GLEN

EVERY JANUARY, we're treated to a plethora of surveys about IT executive priorities for the next year. From year to year, the top one or two items seem to change, but virtually everything below that level stays the same. Beyond the current hot topics, the priorities and problems of IT departments tend to be relatively stable.

One of the perennially favorite issues on these surveys is the alignment between business and technology. It's one of those things we always talk about but rarely succeed at improving. That's not because we're bad people with ill intentions, but because it's very difficult to actually figure out how to fix this persistent problem.

Most attempts to improve alignment involve changing project processes and adding interviews, documentation and meetings in an attempt to coerce people to agree. Generally, this seems to translate into the practice of holding a project hostage in exchange for complete agreement on every detail of its requirements.

In theory, this doesn't seem like a bad idea. But in practice, it tends to result in prolonged fights over whether requirements are complete. Plus, clients and users are often reluctant to ever sign off on documents for fear that they'll be accused of the crime of changing scope whenever they learn something new. Battle lines are drawn between technical teams and business organizations, dividing rather than aligning them.

But poor alignment isn't the result of deficient processes. It's the result of failing human relationships. And no

matter how exquisitely detailed, processes can't replace relationships. While a good process can help, a bad process can sabotage relationships and make the problem worse.

To improve alignment, you need to embrace politics rather than process. And you can design politics into your projects from the start.

First, a definition: In this case, politics probably isn't the kind you're thinking of. Politics simply means the way groups of people make decisions. Usually, when we talk about office

politics, we're referring to the subset that I call "self-interested politics" — people making decisions about what's best for themselves rather than for the whole group. Constructive politics takes place when a group makes decisions based on positive criteria rather than selfish ones.

So improving alignment is mostly a matter of designing constructive politics into the project structure. I call it the "advocacy system." To align business and technology, you should model the political environment of the project within the project team. Each stakeholder affected by a project needs a representative who'll be an advocate for his interests and needs.

For example, it's common now to

have analysts serve as the project team advocates for the sponsoring executives. They're concerned with making sure that the project progresses according to the wishes of the people paying the bills and ensuring that the executives have realistic expectations. The needs of various groups of users also need attention. Technical stakeholders need an advocate, too. Deployment specialists, help desk technicians and developers also have explicit needs and concerns.

Once everyone has an appropriate representative, you need to construct the project team to create an appropriate balance of power to model the external environment. You can think about structuring a project like designing a form of representative government. You want to ensure that the majority rules with due consideration of the interests of minorities.

This way, the relationships between the project team and the external stakeholders are designed into the system. Everyone who's concerned with a project can feel that his interests are being considered — not just in the early phases, but on an ongoing basis. As the project progresses, changes are made and compromises are worked out, such interests receive a fair hearing.

This is how real alignment happens. It can't be found in strategic plans, grand studies or project documentation. It doesn't occur as a spasm of good intentions at the beginning of a year or a project. It happens in the little day-to-day decisions about scope, schedule, quality, features and budgets. Alignment happens on the ground every day and is played out in the relationships between stakeholders and project teams. **43537**

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Software Architect - Research, design, dvlp & test operating systems & s/ware, compilers & n/wk distribution s/ware for embedded real-time & enterprise apps. MS + 3 yrs BS + 6 yrs or PhD + 1 yr exp req'd. Must have 1 yr exp w/reach of SAGE integration & SPI technologies; 2 yrs combined exp w/embedded systems dvptmt methodologies & real-time operating systems frameworks incl VxWorks, PSOS.

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Technical Operation Specialist wanted by Nursing & Rehab Ctr in IL to provide tech support to Info Systems staff, assist users to resolve computer related problems such as unresponsive hardware or s/ware. Req'd Assoc Deg or equiv in Comp Sci. Will accept equivalency evaluation of 2 yrs of academic studies toward Bach in Comp Sci, or Training Aor Exp in Comp as equiv in lieu of Assoc deg in Comp Sci. Respond to John Marc, Sianghio, Administrator, Harmony Nursing & Rehabilitation Center, 3919 W. Foster Ave, Chicago, IL 60625. No calls.

Computer eTechnosoft Corporation has multiple openings for Programmer/Analyst, Software Engineer, Project Lead/Managers. Send resume to: 8700 W. Bryn Mawr Avenue, Suite 800 South, Chicago, IL 60631 or email to: resume@etechnosoft.com

Software Engineer (St. Louis, MO) Develop/test/impl large-scale multi-tier RDBMS applying OOD in busi functionality. Development tasks include: server side test, logic modules using Unix C/C++ & SQL; server utilities on UNIX using Korn Shell/Perl scripts, front-end GUI apps using VB or Visual C++; static mod. ules w/math modeling & algorithms; tuning/testing (plan & unit/system/regression phases) using Rational, Quantity, Purify/PureCov, and tech sppt apps on Access. Require MS plus 1 yr exp.

Sr. Programmer Analyst (Sys Admin) (St. Louis, MO) Architect/impl large-scale infra-structure/middleware projects. Tasks include: analyze/dmnl/tune F10K/E10K Sun Servers in clustered env., architect/impl portals & appl. servers in WebSphere/Weblogic; impl tune middleware using MQSeries & RetreiveWare; impl corp LDAP in Oracle; DB2 on Solaris; Unix, AIX, Win2000/NT & HP-UX; and architect fraud detection env. Require BS plus 2 yrs. exp.

Programmer (Test) Analyst (Chicago, IL) Design/develop automated testing process involving Legacy System in mainframe/mini server in WinNT/2000 env. Duties are: analyze busi/sys reqs, rules and formulate test plans; perform sys user acceptance and regression testing in mainframe EDI env. using FILE-AID, ATTACHMATE and VAN-TIME; write SQL queries on data in LASR-DB2, MGR-SYBASE, ADAPT-ORACLE and WNRUN; NER Access; develop auto test scripts using TSL and batch tests in CR and DR env. Requires BS plus 6 mon exp.

Full time w/ competitive salary. Resume to: C Nottingham, HR, NetEffects, Inc., 500 Chesterfield Center, Ste 350, St. Louis, MO 63017. NO CALL/EOE.

Firmware & H/W Eng (Westhampton, NJ) Write drivers for SmartAntenna, SCDMA/DOCSIS, DAVIC, OCAP, DTV, Debug h/w & s/w for OCAP STB device designs using JTAG, Partner, ET-II, Cgwin, SmartAntenna, CMTS/CM, Matlab, VERAHDL, Synopsys, OpenTV & DTV. Write FEC (Reed Solomon, Trellis, Interleave) algorithms, test benches & behavior models to verify h/w & chip design. Bach's deg in Comp Sci, Physics or Elect Engng req'd + 3 yrs exp in job offered. Send resume to: NEC/SA/Parasonic Semiconductor, 550 South Winchester Blvd, Ste 300, San Jose, CA 95128, Attn: Todd Windley, SG.

Vignette Content Management. Seeking Vignette developers with strong Java skills and experience creating Detailed Design Documents for Vignette Java Developers. Design Java Business Component, Action Component and Presentation Component using OOD techniques and static design using UML. Technical Services Manager-Healthcare. Individual to participate in developing and implementing self provisioning web-services based process automation solutions for healthcare payer industry. Must understand third party requirements related to data storage, transmission and transactions including claims adjudication. Will work with IT Staff and end users. Submit resume and references to: HR Trac, USA, 50 Carnegie Drive Piscataway NJ 08854.

DATABASE ENGINEER/DEVELOPER. Quantitatively-based Financial Management firm seeks Database Engineer/Developer. Duties include development and maintenance of proprietary database engines, databases for Company's computer-driven trading systems and supporting accounting systems (including equities, options and futures databases), reporting programs and utilities. Ph.D. in Computer Science required. Will accept candidates with Master's degree and two years experience in job duties. Salary according to experience. Mail resume to: RTO, 600 Route 25A, East Setauket, NY 11733. Attn: RM

Mphasis Corporation has multiple openings for the following positions at its offices in New York, NY, Memphis, TN, Houston, TX and unanticipated client sites throughout the U.S.: Programmer Analyst, Software Engineer, Project Manager, Management Analyst, Sales Engineer, Business Development Manager, Finance Manager. Please send resume, salary history and position applied for to: 444 Park Avenue South, Suite #503, New York, NY 10016. Attn: H.R. Manager.

Oracle Application Developer for IT consulting company in Fairport, NY. Requires minimum two years experience using SQL and PL/SQL tools to design, develop, troubleshoot and enhance Oracle financial applications, including evaluating and analyzing user requirements, investigating and resolving application issues, developing functional specifications for enhancements, customizing and testing application upgrades, and developer and modifying Oracle financial module forms, reports and operational procedures. Send resume to Morgan Patrick Ober Inc., 345 Woodliff Drive, Fairport, New York 14450.

Sys. Analyst to convert data from AutoCAD to GE Smallworld. Customize GE Smallworld for Telecom utility networks. Monitor objects in PNI Network & ensure connectivity. Develop software for CATV Design in GE Smallworld. Design, code, test & implement Web based GIS solution for Cable industry on Java to display location info. of fiber, equipment, maps & other geospatial data. BS in Comp. Apps. & 1 yr exp. in job duties. Also, 1 yr exp. on GIS projects in GE Smallworld/ Magik. Comp. Salary Apply to IMMCO, 11138 State Bridge Road, # 200, Alpharetta, GA 30022 with proof of permanent work auth.

System Analysts needed. Seeking qual. candidates possessing BS or equiv. and/or rel. work exp. Part of the req. rel. work exp. must include 1 yr working w/ Coldfusion & XML. Certified Coldfusion developer preferred. Duties include: Develop systems, databases, & Coldfusion templates. Analyze user needs & implement enhancements. Work w/ Coldfusion, XML & SQL Server. Send res., ref. & sal. req. to Pyramid Consulting Inc., 5335 Triangle Parkway, #510, Norcross, GA 30092.

Software Engineers to analyze, design develop apps using VC++, C++, VB, Java, JavaScript, XML, HTML, COM/DCOM, ASP, Oracle, IIS, DLL, TCP/IP under Windows/UNIX OS; perform system functional req. analysis; document detailed product spec and review conceptual model with users; provide training/support for related app software; perform debugging/modifications of existing software. Require: MS or foreign equiv. in CS/Engg. (any branch). High Salary. F/T. Travel involved. Respond to: HR, Mindspan Systems, Inc. 6050 Peachtree Parkway, Suite 240-214, Norcross, GA 30092.

Data Recovery Engineer for computer data recovery and engineering company in Schaumburg, IL. Requires minimum two years experience diagnosing, repairing and recovering damaged data in Windows and Mac environments including recovering data from damaged magnetic and optical media and RAID, file systems, mail and SQL database systems and using C++ to develop software for data recovery procedures. The position is located primarily in Schaumburg, IL with 5% domestic travel. Send resume to David Foster, ActionFront Data Recovery Labs Inc., 1501 E. Woodfield Rd., Ste 201N, Schaumburg, IL 60173.

NETWORK/NETWORK ADMINISTRATOR wanted by MRI centers in Houston, TX. Must have degree or its equivalent through proper evaluation, plus exp. Respond by resume only to: Ms. F. Pahlavan, M/B - #10, Universal MRI and Diagnostics, Inc., 3115 West Loop South #2, Houston, TX 77027.

.Net, C# IT Professionals
Reahum Resources is seeking software architects and software engineers with college degree or equivalent combination of education and experience in computer science/EE background, to provide consulting services to our clients in various undetermined locations throughout the country. We require 5 yrs of experience including projects involving combination of use of more VB.Net, VC++ .Net, C#, SQL 2000. Send resume to Sara, Reahum Resources, 13911 Ridgedale Dr., Ste. 300A, Minnetonka, MN 55305.

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AlphaSoft Services Corp. is a rapidly growing systems integration & software development services provider. We are currently recruiting for the following FT openings in Walnut Creek, CA:
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Acro Service is looking for MIS, Programmer/System Analysts, Software/Electrical, Industrial or Project Engineers, Tech. Recruiters. Bachelor or Master degrees and experience required depending on positions. Please send resumes to corporate@acrocorp.com. EOE. No phone calls.
System/Programmer Analysts, Software/Project Engineers or other IT professionals wanted by Imetrus, an e-business solutions provider. MS/BS & exp. required. Skills in Oracle, SQL, Java, SAP, PeopleSoft, ERP tools preferred. Competitive wages. Please contact info@imetrus.com. EOE.

Software Dev. Co. req. Software Engineer w/MS & 1yr exp. & Programmer Analyst w/BS & 24 mos. EXP. in foll: Visual Basic, Oracle, PowerBuilder, Sybase, Java, Unix, C++, AS/400, SQL Serv., Synon, Cobol, Lotus Notes, SAP, Java Script, HTML, DB2, Corba, CICS, ILE, RPG, EJB, Siebel, JD Edwards, Weblogic, Rational Rose. Equiv. Deg. & exp. also accepted. Travel & Relocation req. anywhere in U.S. Send res. to Attn: Recruiter, Allied Informatics, Inc., 2797 Prairie Avenue, Suite 16, Beloit, WI 53511.

Optimal Solutions Integration, Inc. has multiple openings for SAP and i2 Consultants, Software Analysts and System Analysts. Please send resume with salary history and requirements to Optimal Solutions Integration, 8445 Freeport Parkway #240, Irving, TX 75063. Open to Green Card holders or US Citizens.

Internet company seeks PhD Research Engineers responsible for innovative research. Interested applicants should send resumes to: K Wolfe; 1501 Salado; Mt. View, CA 94043. Visit www.google.com for additional information.

Meridian Technologies looks for IT professionals for various positions in the area of Oracle, SAP, SQL, Java, Web applications, Unix, etc. Candidates must have BS or equivalent with some IT experience. Travel required for some positions. Please contact maral@meridiantech.net. EOE.
ANA Associates has openings for software engineer, system programmer, analyst. Qualified applicants must have BS with 1-yr exp. Skills in Java, VB, Oracle, SQL, web technology are strong plus. We are small but stable. Competitive wages. Apply at anaes@anaconsulting.com. EOE.

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PROGRAMMER ANALYST

Hexaware Technologies Inc. is seeking a Prog. Analyst to work in Lisle, IL to analyze, design & implement. After sys. & app. BS in Comp. Sci., Comp. Info. Syst. or Electronics Engng. 2 yrs. exp. as a Sr. Hr. Engr. Prog. Analyst or Const. rod. Must have exp. utilizing Obj. Oriented Anlys. & Dsgn, SQL Serv. & Oracle Serv. RDBMS, VB 6.0 for end anlys. & dsgn, Oracle Forms, 4/5/5.0, Oracle Rpts 2.5/3.0 & Crystal Rpts. High mobility preferred. Resume only to: R. Ravindran, Dir.-HR, Hexaware Technologies, Inc., 4343 Commerce Ct., Ste. 618, Lisle, IL 60532.

Systems Analyst, NH based IT firm. Need 4 yrs of exp. on the Job or as Network Admin. Skill req. C++, TCP/IP, IPX/SPX, NetBEUI, LDAP, RFP/IGRP, ICMP, SNMP, HDLC, FDDI, SMTP, IMAP, POP3, TELNET, DHCP, LDAP, RAS, CHAP, L2TP, MISPL, NFS, UDP/IP, SNA, Microsoft Exchange Server 2000, S.X. Novell MHS Mail, MS Internet Information Server, Wingate Proxy, Microsoft Proxy Win 98, 2000 & NT, HRD. Software Research Group, Inc., 75 Gl Crest Rd, Apt #200, Londonderry, NH, 03053

Sr. Architect, Information Systems. Provide guidance & expertise on software design, dev. & architecture in multiple areas w/ primary focus on internet tech., Siebel CRM implementation, Enterprise Applications Integration & Security & Identity Mgmt. tech. Possess in depth technical knowledge & dev. level skills in progr. languages (Java, C++, C). Messaging & EAI technologies etc. Req. M.S. Comp. Sci. & 1 yr of exp. in job or 1 yr exp. as a Sr. Software Engineer. Send ad & resume: Kyle Foster, Angen Inc., One Angen Center Dr., Thousand Oaks, CA 91320, 1799 (jobsite) include Ad#903-488FV.

Computer specialist, Naples, FL
40 hrs/wk, 8am-5pm, \$15/hr. Req's HS education, one yr training in computer related field & two yrs exp. in job offered. Work on PC network in insurance office. Train staff on all hardware & software. Interface on all computer related issues. Repair & service office equip incl printers, fax, copy machines. Verifiable references. Send resume to Agency for Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869. Ref: JOFL #2469123.

Software Engineers to analyze, design develop apps using OO Methodologies, VC++ C++, Java, HTML/DHTML, XML, XSL, SQL, Perl, Oracle under Windows/UNIX OS, perform project scoping, planning time/cost schedules, quality of deliverables, perform tune up to improve system performance; study, evaluate new technologies; provide technical guidance for complex user problems. Require: MS or foreign equiv. in CS/Engg. (any branch) & 1 yr exp. in IT. High Salary, F/T. Travel involved. Resumes: HR, Unixlin, Inc., 4625 Alexander Dr., Ste 110, Alpharetta, GA 30022

BUSINESS ANALYST, Keller, Texas. Require Bachelor's degree in a technical discipline such as engineering, physics or math & MBA, data modeling and data analysis experience, & graduate course work/project or previous work experience using statistics software applications. Send resume to Coming Cable Systems, LLC, Attn: Human Resources Manager, 9275 Denton Highway, Keller, Texas 76246. NO PHONE CALLS PLEASE.

Vice President, Network Engineer. Must have bachelor's degree in business or computer information system. Location: Wilmington, DE. Fax CV to Brandywine Medical Management at 302-984-2575.

Programmer Analyst needed for IT consulting firm located in Burlington, VT. Job duties include: Develop computer applications for clients located throughout the eastern U.S. specifically installing, configuring, and integrating the Siebel software package with other systems of the client including mainframe, SAP, and Oracle. Connect the newly developed system to the web at client's request. Work as a part of a team under direct supervision. Applicant must have B.S. degree in Computer Science, Business, Mathematics or Engineering. Applicant must also have 1 yr exp. in the job duties described above or in any computer related occupation which includes the skills listed above. 40hrs/wk, 9:00 am-5:00 pm, Mon-Fri, \$52,936/yr. Send resume & cover letter to: Vermont Dept. of Employment & Training, Job No. 6126502, P.O. Box 488, Montpelier, VT 05601-0488.

SYS/NETWORK ADMSTR. Perform sys & network adminstrn of Unix servrs. Evaluate & recommend hardware, reqs, & project planning & execution mgmt. Trishoot & handle HW/SW rtd probs. Setup & maintain SAN & Clusters for hi availability. Dvp tools for perfmon & admin efficiency. Setup & maintain remote installatn servr. Adminstr E-test envrmnt. test executn of Logical Volume Mgr on Admrc File sys & TruClusters. & sys backup & restoratn. Req Bachel deg in CS, EE or ME + 3 yrs exp in job offered or as Unix/Sys Adminstr or Unix Engr + spec reqs of Unix sys & network adminstrn. Unix servr SW/HW, Unix Security Mgmt, HP-UX sys & network adminstrn, HP-UX SW Configurtn Mgmt sys, write code & script for tools dvpmt, SAN, Volume Mgr & Cluster. Sal: \$78,280/yr. Loc: Nashua, NH. 8am-5pm, 40hrs/wk. Send 2 copies of resume/letter of application to: Job Order # 2004-004, P.O. Box 989, Concord, NH 03302-0889. Must have proof of legal authority to work in U.S.

Sr. Sys. Analyst for software dev., planning, project & team mgmt. Perform system req. analysis, review client biz. goals, & end user needs. Perform database design using ERWIN, resource allocation & develop web/e-commerce systems using ASP/Net, C#, Active Server Pages, VB, Net, Visual Basic 6.0, VB Script, Java Script, SQL Server 2000, Conv., XML, XSL, Acrobat PDF, Rational Rose, ERWin, Windows 2000 WinNT. Customize, upgrade & maintain software packages: Ebx-Asp and Ebx-Exchange. Evaluate code against stds, & maintain prog. doc. BS in Comp. Applns. + 2 yrs. exp. in job duties. Comp. salary at prev. wages. Apply: HR, EBIX, 5 Concourse Parkway, # 3200, Atlanta, GA 30328 with proof of permanent work authorization.

SR. VISUAL BASIC CONSULTANT

Analyses & evaluates existing or proposed software sys. Dvps, implemets & improves programs, sys. & related procedures to process data using in-depth knowledge of the software dvlpmnt life cycle. Encodes, tests, debugs & installs operating progs. & other sys. software utilizing advanced knowledge of Vis. Basic prog. tools. Each degree (or equiv.) in Comp. Sci., Math, Engrng, Bus. or Commerce + 3 yrs exp. in position offered or as a Software Engr. Prog. Analyst or Sys. Analyst reqd. Exp. must incl. (1) Over Sys.: Windows or UNIX, (2) Prog. Langs: Vis. Basic, ASP & XML, & (3) Databases: Oracle or Sybase or SQL Server. High mobility preferred. 40 hrs/wk, 8am-5pm, \$64,240/yr. Qualified applicants submit resume to: Mon Valley Regional Career-Link, Attn: Acq. Ct. Program Supervisor, Donora Industrial Park, 570 Gasfita Drive, Donora, PA 15033. Please refer to Job Order No. WEB 380917.

Senior Systems Software Engineer (Milwaukee, Wisconsin) Research, design, develop, test & support business & data processing applications & systems. Apply working knowledge of Next Generation Software & Media server systems to the development of call center & VoIP based products & features addressing software architecture using UML/OOAD methodologies incorporating AIN service concepts. Implement software based on SS7, ISUP, TCAP, H.323, H.248, SIP, E.1, T.1 & ISDN signaling protocols & VoIP technologies for Real time sub-systems using UNIX/LINUX, Windows NT 2000, C++, JAVA, VC++, SQL, PVCs/Clear Case, SDLFSM, Protocol Analyzers, BSIMS in Computer Science, any Engrg. or related field, & relevant exp. req'd. Send resume to Vivian Fernandez, MBT International, Inc., 5215 N. Ironwood Rd, Ste 106, Glendale, WI 53121.

Director, Skyns Networks, Cambridge, MA Will research, design, develop & manage, networking protocol software, & commercial deployment of distributed applications, based on the Skyns™ Protocol. Req. Bachelor's Degree in Comp. Sci. 2 yrs exp. as Systems Software Engr. knowledge of Distributed Systems & Networking Technologies, Adaptive Communication Environment, Distributed Hash Tables, & domain expertise in Peer-to-Peer technologies, markets, & "The Skyns Protocol and System" Send resume & proof of authorization to work permanently in US to: Chris Weiss, Office Manager, Skyns Networks, Inc. & Stirling Bridge, 59 Pleasant Street, Cambridge, MA 02139. No phonecalls.

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Systems Analyst to analyze user requirements, procedures, and problems to automate processing or to improve existing computer system; review computer system capabilities study existing information processing systems, develop new systems to improve production; will use a variety of software tools including: SAP R/3, ABAP/4, Apache, Java, JDBC, Oracle, PL/SQL, Servlat, Rational, Rose. Master's degree or foreign edu. equiv. of same and 1yr exp required.

Programmer Analysts to plan, develop, test, and document computer programs, applying knowledge of programming techniques and computer systems; evaluate user request for new or modified program, formulate plan outlining steps required to develop program, using structured analysis and design. Design new code program or replace, delete, or modify existing code/program to meet client needs, will use a variety of software tools including: SAP R/3, ABAP/4, Cobol, C, Fortran, Visual Basic, Oracle, Pascal, Solaris. Bachelor's degree or foreign edu. equiv. of same and 1yr exp required.

For some positions, we also accept the degree equivalent in edu. and exp. Travel and/or relocation required. Send confidential resume, salary requirements and position applying for to: Pinnacle Talent, Inc. Attn: HR 1919, Midwest Road, Suite 210, Oakbrook IL 60523.

Programmer Analyst. Convert customer requirements into program specifications, analyze the impact of proposed solutions on business applications, ensure satisfactory functioning through testing, analyze results and correct deficiencies according to customer requirements, and review work done by development team members. Must have three years college in Computer Science, Engineering or related, one year experience in job offered or System Engineer, including one year experience with software development, maintenance and testing using C and knowledge of Prof. C, client server architecture, RDBMS, Windows, Unix, and PVCS or other version manager tool. Send resume to APAC Customer Services, Inc., Attn: Cindy Cortney, 6 Parkway North Center, Deerfield, IL 60015. EOE/AA. APAC CUSTOMER SERVICES, INC. is not affiliated with APAC, Inc., the road paving and construction materials company.

RK Management Consultants seek IT Professionals with minimum 1 year experience using Financial Fusion, Opt4/DC, ACT 1.1, Informix, Netpurify, VNC, CMVC, SAP/R3 BW, HP Openview. The candidate must have MS or BS or equivalent in C/S or any related field. Please send resumes to: HR Dept, RK Management Consultants, 1 Tower Lane, Suite 2540, Oakbrook Terrace, IL 60181.

SOFTWARE ENGINEER to design, develop, implement and maintain complex web based e-commerce and enterprise application integration applications software in a client/server environment using Object oriented technologies, Java, Oracle SQL, J2EE, EJB, JDBC, JMS, JNDI, and XML under SUN, Solaris, UNIX, Linux, and Windows NT/2000 operating systems; utilize third party workflow products for business process automation; deploy applications on J2EE servers such as BEA weblogic servers on UNIX; develop build scripts and deployment scripts using ANT; test developed software using JUnit/JPERF; integrate with COBOL based legacy software systems with LDAP based user directories for security management. Require: B.S. degree in Computer Science, an Engineering discipline, 4 to 6 years of experience in the field, with three years of experience in the use of Java. Extensive travel or assignment to various client sites within the U.S. is required. Competitive salary. Offered: 8:00 am to 5:00 pm, M-F. Send resume to: Vishy Dasari, President, Objectnet Technologies, Inc., 1117 Perimeter Center West, Suite E104, Atlanta, GA 30338. Attn: Jon NM.

Technical Lead. Responsible for team supervision & development of B2B travel software using Java 2/J2EE, JDBC, Visual C++, UML, XML, XSL, HTML, CSS, Javascript, JSP, EJB, Oracle, OO Modeling, & TCP/IP communications. Design & implement software applications using VSS, Rational Rose, HomeSite, Photoshop/ImageReady, Fireworks, Dreamweaver, TOAD, Frontpage, eXcelon Stylus, MS Weblogic, & PVCS. Master's Degree (or foreign equivalent) in CS, CE, EE or closely related field plus one year experience in the job offered or as Software Engineer, Programmer Analyst, Web Designer or closely related occupation. In lieu of Master's plus one year experience, will accept Bachelor's plus five years progressively responsible experience. Must have minimum one year experience in travel industry. Must be certified Java Programmer. Must have demonstrated expertise in clustered Weblogic environment using IIS or SBA041yr 40 hrs/wk, M-F 8:30a - 5:30p. Must be presently authorized to work in U.S. Respond with 2 resumes to: Case # 200203414, Labor Exchange Office, 19 Stamford St., 1st fl., Boston, MA 02114.

Performing software engineering design, test, analysis and implementation of various computer applications for Web based architecture with respect to financial industry. Extensively use of Java with EXTRICITY on the web servers like WEBSphere and IPLANET. The databases like ORACLE 8i and DB2 should be used to retrieve data. Should work with operating systems like UNIX and WINDOWS NT etc. 40hr/wk. Resumes should be sent to 226 Paul St. #204, Pittsburgh, PA 15211. Job Order# 343657.

NetRatings, Inc., a global leader in Internet media & market research, is seeking qualified candidates for Sr. Software Engineers for our Milpitas, CA office. NetRatings, Inc., 890 Hillview Court, Suite 300, Milpitas, CA 95035. Please submit resume to: Sue Dreblow, Human Resources, at jobs@netratings.com.

TECHNICAL CONSULTANT

Research, design, and develop computer software systems in conjunction with hardware product development. Also perform interface between hardware, software, operational and performance requirements of overall system. Prepare status reports to management and customers. Knowledge of Tandem-based hardware required. A bachelor's degree or equivalent in Computer Science/Engineering or related field. Equivalent work experience or combination of work experience/education will be accepted in lieu of bachelor's degree. 40 hours per week 8:00 a.m. to 5:00 p.m., 3 yrs. of exp. in offered or related occupation. \$75,000/year. Must have proof of legal authority to work in the United States. Send your resume to: Madhavi Bhadrachari, Nebraska Department of Labor, P.O. Box 94600, Lincoln, NE 68509. Refer to Job Order: TREL5-LJDP-090834. This advertisement is paid for by the employer.

Client/Server Analyst: Louisville, KY: Designs, implements and supports two-tier and three-tier client/server infrastructure in a multi-server WAN/LAN environment with NT and Netware server support all the O/S level. Requires a Bachelor's degree and at least one year of experience in the above. Reply with resume to: IT Job, P.O. Box 6351, Louisville, KY 40206-0351.

Experienced Systems Analysts will use a variety of tools including Oracle, Java, SQL Server, VB, Crystal Reports, SAP, HTML & Sybase. Bachelor's degree or foreign edu. equiv. + 1 yr exp reqd. Travel reqd. Send confidential resume and salary requirements to: Indus Consultancy Services, Inc., Ref. FL, 140 E. Ridgewood Ave, Paramus, NJ 07652. Visit our website at www.indcon.com.

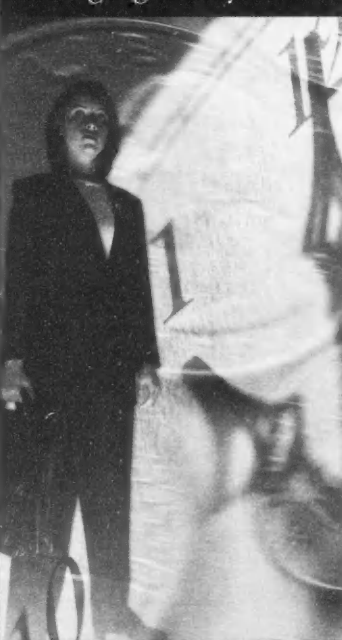
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PROGRAMMER/ANALYST to analyze, design, develop and test application software using COBOL, CICS, DB2, JCL, IMS, VSAM, REXX/CLIST, Endeavor, QMF, FileAid, Informan, Pervasive, IBM Universal Database, Easytrieve, IBM CTG, IBM VSAD, XML, CA Interact, Xpeditor, Java, Applets, Servlets, Java Script and HTML on mainframe platform. Requires Bachelor's degree (or equivalent) in Computer Science/Engineering, or a closely related field with 1 yr of exp in the job offered. Each 3 yrs of progressively responsible work exp in the field will be considered equivalent to 1 yr of college education. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Kondala R. Maddala, Apkon Systems, Inc., 1366 Valmont Trace, Marietta, GA 30066; Attn: Job KD.

Performing software engineering design, test, analysis and implementation of various computer applications for Web based architecture with respect to financial industry. Extensively use of Java with EXTRICITY on the web servers like WEBSphere and IPLANET. The databases like ORACLE 8i and DB2 should be used to retrieve data. Should work with operating systems like UNIX and WINDOWS NT etc. 40hr/wk. Resumes should be sent to 226 Paul St. #204, Pittsburgh, PA 15211. Job Order# 359770.

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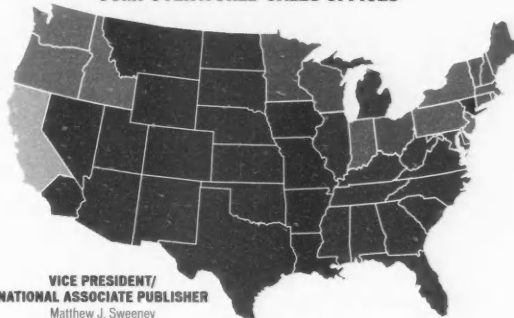
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Java Group

the JTC is a good idea, they're skeptical about it.

"I think it is mostly a reaction by the participating companies to their slipping market share in the tools market, which in turn drives sales in the application server market," said Walt Smith, chief architect at a large U.S.-based financial institution. "IBM has taken a leadership position in the enterprise Java market."

Bob Sutor, director of WebSphere infrastructure software at IBM, said that he has nothing bad to say about the JTC and that his company is always happy to chat with other vendors. But he also stressed that IBM plans to keep its focus on the open-source Eclipse development framework it created, which he called "really the compelling industry effort."

One of the main benefits

users get from Eclipse is the ability to work from a single interface with any tools, spanning multiple languages, that plug into the framework. IBM donated its Eclipse code to the open-source community. Plans call for its oversight organization to soon become independent (see story below).

"I give IBM credit with Eclipse, because they are solving a specific need — a solid development environment that doesn't cost a fortune — and they're making it completely open-source," said Ethan Roberts, development architect at General Casualty Insurance Company of Wisconsin in Sun Prairie. "Until Sun does the same thing with Java, all these consortiums just seem like noise."

Roberts, a Microsoft-centric developer who is just starting to use Java, said he finds it frustrating that Microsoft makes the best tools, since he would rather do Java development

with Visual Studio-like functionality, ideally on Linux. "Ask the vendors to make Eclipse as good as Visual Studio .Net and quit horsing around with yet another consortium — please," Roberts said.

"The JTC appears at first to be a strategic move against IBM and the Eclipse partners. It is probably redundant," said Chris McBrien, a developer/analyst at Mark's Work Wearhouse Ltd., a Calgary, Alberta-based retail chain. "We would rather see Sun, BEA and the other JTC partners support Eclipse with plug-ins for their specific products."

George Paolini, Borland's vice president and general manager of Java products, said his company is concentrating on the "ecosystem" of vendors building to its PrimeTime development framework. He said Borland has had discussions with JTC vendors and supports efforts to address issues related to Java tools — particularly in

FAQ: Java Tools Community

WHAT IS IT? An open community of tool vendors, customers and developers that seeks to promote the creation, adoption and advancement of standards to ease the building of tools that can interoperate with one another. Web site: www.javatools.org

WHY WAS IT FORMED? To address the lack of focus on tool building and interoperability in the Java Community Process, which Sun Microsystems established to evolve the Java technology it created. Specifications submitted to the JCP traditionally have focused on runtime characteristics.

HOW DOES IT PLAN TO ACHIEVE ITS GOALS? Through public recommendations, studies, opinions and specification submissions to the JCP.

WHO ARE ITS FOUNDING MEMBERS? **Core members (steering committee):** BEA Systems, Compuware, Iopsis Software, JetBrains, Oracle, Quest Software, SAP, SAS and Sun. **Advisor members:** Embarcadero Technologies, Insitech Groups, Make Technologies, Sprint and Verizon.

the area of design, since the Java Community Process (JCP) that Sun established tends to be server-focused.

Paolini said Borland will take a wait-and-see approach on the JTC until it knows how the group will be structured. He added that he thinks the JTC

"needs to be an organization that's working within the JCP."

Ted Farrell, chief architect and director of strategy for application development tools at Oracle, said there is no formal arrangement about how the JTC's work will flow into the JCP, but "everyone is committed to the JCP." He said the JTC is "really a support organization for the JCP" and its work "will feed the JCP."

Farrell said he doesn't see the lack of participation by IBM and Borland as a major problem. "It would be great if they were fully behind this effort now instead of partially behind this effort," Farrell said. "But this isn't critical. IBM and Borland are building tools off the same standards as the rest of us, and JTC is an organization that is going to help shape those standards."

Mark Driver, an analyst at Stamford, Conn.-based Gartner Inc., said he doesn't think the JTC can be effective without IBM's and Borland's support, but he expects Borland to join within the next few months and IBM to join by year's end.

The possibility also exists that Eclipse could join the JTC. The decision will be up to the board of the Eclipse Foundation once it's been established. ☐ 43950

Eclipse Spin-off Expected Within Weeks

The open-source Eclipse development framework that IBM created should have an independent, nonprofit corporation overseeing its technology direction and growth within two to three weeks, a top official said last week.

Skip McGaughey, the IBM tools official who has served as the chairman of the company's Eclipse group, said he hopes to have signatures from two-thirds of the organization's members by the time of the inaugural Eclipse technical conference, scheduled for Feb. 2-5 in Anaheim, Calif. Once the signatures are obtained, the Eclipse Foundation will file articles of incorporation, he said.

At that time, McGaughey will relinquish his post and be replaced by a full-time, non-IBM executive director to be elected by the new group's board. McGaughey said

four candidates have been interviewed, but he declined to name them for confidentiality reasons.

Although the Eclipse organization has gained considerable momentum since its creation just over two years ago, it remains unclear at what level its 49 members will participate in the new body now that many will be required to pay a steep fee.

To become a board member with decision-making powers at the strategic partner level, a company must contribute two to eight developers plus a percentage of its annual revenue or a flat fee not to exceed \$250,000, according to McGaughey.

The annual fee is much cheaper — \$5,000 — for "plug-in providers" building components for Eclipse, McGaughey said. And there will be no charge for individual code "committers" elected

by peers, or for "associate" members such as universities, standards organizations, user groups and open-source communities, he added.

Sun Microsystems last year said it had decided not to join Eclipse at any level for the time being.

Ted Farrell, chief architect and director of strategy for application development tools at Oracle, said his company is evaluating how much power it needs in order to gain benefit from Eclipse. A plug-in is available to help Eclipse users deploy to Oracle's runtime.

George Paolini, vice president and general manager of Java products at Borland, said some of his company's tools plug into Eclipse, but Borland will continue to be an observer more than an active participant in the Eclipse Foundation. He said Borland

views the Java Community Process that Sun established to evolve Java as "the paramount organization."

One thorny issue that continues to dog Eclipse is its proprietary Standard Widget Toolkit (SWT) for building graphical user interfaces — a break from the JCP-endorsed Abstract Window Toolkit and Swing components. McGaughey said work is ongoing to allow SWT and Swing to interoperate, and he hopes the matter will be resolved in the next six months.

But some users are sympathetic to IBM's plight. "If the JCP is delivering something subpar, I think it's appropriate for a vendor with a huge investment in the technology to do what they need to for their customers," said Ethan Roberts, a development architect at General Casualty Insurance Company of Wisconsin in Sun Prairie.

— Carol Silva

FRANK HAYES ■ FRANKLY SPEAKING

Neither 10 Nor Two

TEN IS TOO MANY. TWO IS NOT ENOUGH." That's the rule of thumb I was taught by an IT manager from General Electric years ago. When you're deciding which software to buy, 10 choices make too long a list to sort through easily. Having just two choices doesn't offer enough flexibility. The sweet spot is somewhere in between.

The government of Israel went looking for that sweet spot late last year, when it decided to abandon annual updates to its Microsoft applications and throw its support behind the open-source OpenOffice suite [QuickLink 43880]. It wasn't exactly a case of

"open-source or bust." The Israeli government still has Windows XP and a nonupgraded version of Microsoft Office on its PCs, and it still pays Microsoft for support.

But Israel's Ministry of Finance is reportedly unhappy with Microsoft's unwillingness to cut prices for users who don't need the whole Microsoft Office suite. So the ministry started talking to Sun and IBM about developing a Hebrew-language version of OpenOffice.

When Microsoft still wouldn't budge on price, Israel pulled the plug on Office upgrades — and started making plans to migrate to OpenOffice. And now the Finance Ministry is talking up OpenOffice as an affordable application suite for Israeli consumers, too.

Will the Israeli government actually abandon Microsoft Office for OpenOffice in a big way? Maybe, maybe not. But it could. And it's making sure the possibility is credible by actively supporting OpenOffice.

Does this represent an attack on the proprietary software business, or a commitment to an open-source philosophy? Nah — it's just old-fashioned negotiating hardball. If Microsoft offers a better deal, that ardor for OpenOffice will likely cool. As with most big IT customers looking at open-source software, this isn't about philosophy. It's about money.

If you keep that principle in mind, you may have the opportunity to go looking for that sweet spot soon yourself as Linux, OpenOffice and other open-source Microsoft competitors keep gaining momentum.

And why not? It's nothing new. A decade or so ago, you could play the vendors of PC office suites off one another and threaten to walk away from any of them. That forced

prices down and kept vendors listening hard for what would make you happy.

But today you don't have 10 competing vendors for PC office suites. You don't even have two credible commercial alternatives. Now the only vendor is Microsoft; when it comes to proprietary software, you've got no walk-away leverage at all.

Enter open-source. Suddenly, you can get some leverage again — but only if you're willing to do the same things that hardball negotiations required in the premonopoly days.

That means knowing what your competing alternatives are. And being certain that they'll do what your users need. And that your users will accept the software you choose. And, most of all, that you really can walk away from whatever you don't select.

And that, in turn, means you can't afford a philosophical or personal commitment to either open-source or Microsoft. Not if you want real negotiating leverage. You've got to be focused on the best deal and nothing else.

Are you ready for that? More important, is the open-source software you might use ready for prime time? You'll have to decide those things

for yourself. Maybe for your company, that competitive sweet spot doesn't exist yet.

But now's the time to start your evaluation. Every time a high-profile customer walks away from Microsoft, you've got a little more potential leverage — if you're prepared to use it.

After all, you're never likely to see 10 competing vendors in this space again. And even though two still isn't enough, right now it may be the sweetest spot you're going to find. **43912**



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It's a Technical Term

When e-mail goes down, IT pilot fish checks out the problem and then, per his boss's orders, gets on the PA system. "Our Internet provider is having network problems," he announces. "The estimated time of repair is one hour. I will let you know as soon as we are back online." "First time you ever made an announcement, huh?" says his boss. Fish nods. Boss scribbles down a message and says, "Try this." Fish tries again: "E-mail is broken. It will be fixed in roughly one hour."

In the Usual Way
User calls support pilot fish to report that she's

having trouble powering up her new laptop. "The battery is good," she tells fish. "I used it last night." Is the laptop plugged in? fish asks. User: "How do I determine if it's plugged in?"

Oh Yes He Will

This user's e-mail problems just got worse when his wife, who is visiting his office, pushes some buttons. "Now I'm in a screen that I've never seen before, and I don't know how I got there," he tells support pilot fish. What does the screen say? fish asks. In the background, fish hears a woman's voice: "It's asking me if I want to write to CMOS. What should I do?" User: "I don't know who Sea-moss is, but my e-mail is down, so he won't get anything you write to him anyway!"

Probably About The Same

For this company's quarterly systems audit, sysadmin pilot fish gets a four-page questionnaire to fill out. "The pages were labeled '1 of 4,' '3 of 4,' '4 of 4' and

SHARK TANK

"5 of 4," fish sighs. "And one question was, 'How many network

cards are in the system?' The next question: 'How many NICs are in the system?'"

What Now?

This user, already hip-deep in trouble, calls the help desk: "A message box just popped up, and it's asking me to hit 'OK' or 'Cancel.' What should I do?" Click "Cancel," counsels pilot fish. User: "Well, I've already clicked 'OK.'"

And That Solved The Problem?

Consultant pilot fish gets a call from a small-business client: "I need your help with my PC." OK, says fish, when should I come over? "It'll have to wait until next week, as I'm very busy," client says. Next week, fish follows up. When should I come over to work on that PC problem? he asks. "Oh, I bought a new one," client says. It was probably just a software problem, fish points out. "Yes, but I got frustrated," client admits, "and took it out in the back yard and smashed it to pieces with a shovel."

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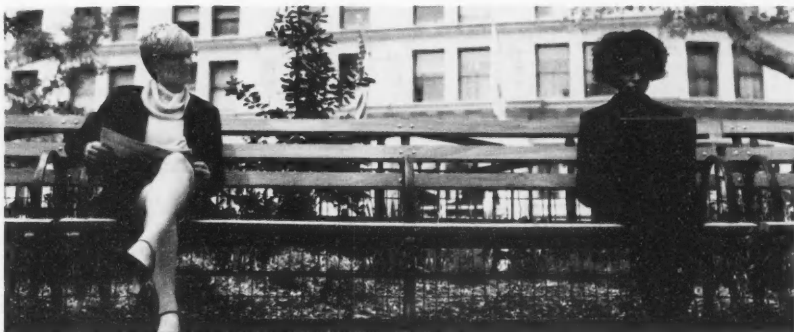
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